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**Second Five-Year Review Report
City Disposal Corporation Landfill Site**

Town of Dunn, Wisconsin

February 2005

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Superfund Division, Richard C. Karl, Director

Date: 2-23-05

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List of Acronyms

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
BTEX	Benzene/Toluene/Ethylbenzene/Xylene Contaminant Mixture
CDCL	City Disposal Corporation Landfill Site
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Difference
LFG	Landfill Gas collection and treatment equipment
MCL	Maximum Contaminant Level
MMSD	Madison Metropolitan Sewerage District
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAL	Preventative Action Limit
PCOR	Preliminary Close-Out Report
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SDWA	Safe Drinking Water Act
THF	Tetrahydrofuran
UAO	Unilateral Administrative Order
USGS	United States Geological Survey
VOC	Volatile Organic Compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WMWI	Waste Management of Wisconsin, Inc.
WPDES	Wisconsin Pollutant Discharge Elimination System

Executive Summary

The United States Environmental Protection Agency (U.S.EPA) Region 5 conducted the first five-year review of the remedy being implemented at the City Disposal Corporation Landfill (CDCL) Superfund Site in the Town of Dunn, Wisconsin in February 2000. This is the second five-year review for the CDCL Site and is being conducted by the Wisconsin Department of Natural Resources (WDNR).

This review will examine significant site developments in recent years, most importantly the need for improvements to the groundwater remedial system based on the need for better control of the groundwater contamination at the site.

After a public comment period and notification in the Federal Register, the CDCL site was officially added to the National Priorities List (NPL) on September 24, 1984. In August 1987, U.S. EPA entered into an Administrative Order on Consent (AOC) with potentially responsible parties (PRP) involved with the CDCL site. The Wisconsin Department of Natural Resources (WDNR) was also a party to this AOC. The AOC required a Remedial Investigation/ Feasibility Study (RI/FS) for the site.

The RI/FS characterized the nature and extent of site related contamination and examined threats to public health and the environment. The RI/FS determined that the primary contaminants associated with the site are volatile organic compounds (VOC) including 2-butanone, tetrahydrofuran (THF), toluene, trichloroethene, xylene(s), and other compounds. The RI/FS reports and other supporting site documents were made available to the public through a local information repository and an administrative record.

In May 1992, a Proposed Plan describing possible remedial actions was made available for public comment. A public meeting discussing the CDCL site findings and remedial options was held June 3, 1992. Comments from the public were received through July 20, 1992. Based in part on the comments received, the U.S. EPA developed and signed a Record of Decision (ROD) for CDCL on September 28, 1992. The primary remediation components included in the ROD were:

- Establish a landfill gas control system to regulate the discharge of landfill gas in compliance with state administrative codes.

- Establish institutional controls, including deed restrictions, which limit future use of the landfill property and nearby groundwater.

- Establish a landfill cap to control direct contact with waste materials and minimize water infiltration into the waste mass.

- Construct a groundwater extraction and treatment system to achieve compliance with

Preventive Action Levels (PALs) and/or Enforcement Standards (ES) for groundwater quality as established by WDNR at the time of the ROD and to maintain compliance with state effluent limits for discharges of treated groundwater to Badfish Creek.

Establish a groundwater monitoring well network and conduct periodic sampling to insure protection of the groundwater and nearby private water supplies.

Remedial design and remedial action for CDCL were split into two main phases: Those operations that dealt with contaminant source control and those that dealt with groundwater collection and treatment. Source control measures were implemented first.

By March 1995, U.S. EPA had given design approval to plans for source control measures. Source control featured landfill gas collection and treatment, construction of a solid waste landfill cover over the majority of the CDCL site, and construction of a hazardous waste landfill cover over former disposal cells 6 and 12. The source control measures were installed from April 1995-October 1995.

WDNR and U.S. EPA issued an Explanation of Significant Differences (ESD) in June 1997. The ESD made provision for an interim groundwater remedial action. This interim measure allowed additional time to plan and design a final groundwater remedy. While trying to select the best treatment technology, contaminated groundwater from the site was approved for temporary disposal at Madison Metropolitan Sewerage District (MMSD). This action was not contemplated in the original ROD necessitating the ESD.

The selected groundwater remedial design used extraction wells east and west of the landfill to capture the separate groundwater plumes. The primary means of groundwater treatment consisted of flow equalization, a fixed film bioreactor to reduce organic content, a clarifier, and sludge management equipment. Approval of groundwater design plans was provided in November/December 1999. System construction was undertaken from November 1999 to June 2000. Since startup the groundwater system has had limited pumping and treatment capacity. Groundwater contaminant concentration trends at the site do not indicate satisfactory improvement in the groundwater quality since signing the ROD in 1992. A Preliminary Close-Out Report was issued on June 23, 2000.

The remedy implemented at the CDCL site is protective of human health and the environment for the short term. All immediate human health threats have been addressed, and there are no contaminant exposures of concern. The landfill cap and gas collection and treatment systems appear to be preventing exposure to waste materials and minimizing the flow of water through the waste mass. The groundwater extraction wells appear to be reducing off-site contaminant migration, thereby protecting the nearby private water supply wells. The groundwater treatment system has maintained compliance with effluent limits most of the time protecting the surface waters receiving the treated wastewater. These conditions allow the remedy at the site to be protective of the public health and the environment for the short term. However, the limited hydraulic capacity of the treatment system is significantly reducing the effectiveness of the

groundwater remedial effort. The limited treatment capacity combined with the low pumping capability of the extraction wells will, in time, cause the site not to be protective of the groundwater resource if actions are not taken to improve groundwater treatment. The remedial objectives set for the site in the Record of Decision call for the groundwater to be returned to a beneficial use in a reasonable period of time. This has been defined to mean compliance with health based groundwater standards at the landfill edge. The current groundwater system has shown itself not capable of restoring groundwater quality at the site in a reasonable time frame. Long term monitoring results for the site do not show significant progress towards health based standards. Therefore improvements are needed in the groundwater related remedial actions at the site, to achieve long-term protectiveness. Long term protectiveness of the groundwater will be achieved by continuing, and possibly enhancing, the pump and treat system and maintaining and monitoring Institutional Controls until cleanup standards have been achieved at the compliance point.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): City Disposal Corporation Landfill Site		
EPA ID (from WasteLAN): WID980610646		
Region: 5	State: Wisconsin	City/County: Town of Dunn/Dane County
SITE STATUS		
NPL status: XX Final Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): Under Construction XX Operating <input type="checkbox"/> Complete		
Multiple OUs? <input type="checkbox"/> YES XX NO		Construction completion date: 06 / 23 / 2000
Has site been put into reuse? <input type="checkbox"/> YES XX NO		
REVIEW STATUS		
Lead agency: XX EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author(s) name: Michael Schmoller		
Author(s) title: Remedial Project Manager		Author(s) affiliation: WDNR
Review period: 02/25/2000 to 02/25/2005		
Date(s) of site inspection: 05/25/2004		
Type of review: <div style="display: flex; justify-content: space-between; font-size: small;"> X Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <input type="checkbox"/> Regional Discretion </div>		
Review number: 1 (first) XX 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other(specify)		
Triggering action: <div style="display: flex; justify-content: space-between; font-size: small;"> <input type="checkbox"/> Actual RA Onsite Construction at OU # _____ Construction Completion (PCOR) <input type="checkbox"/> Actual RA Start at OU# _____ XX Previous Five-Year Review Report </div> <input type="checkbox"/> Other (specify)		
Triggering action date (from WasteLAN): 02 / 25 /2000		
Due date (five years after triggering action date): 02/ 25 /2005		

["OU" refers to operable unit.]

Five-Year Review Summary Form cont'd.

Five-Year Review Summary Form cont'd.

Issues: As remedial design efforts develop, the agencies will look for indications of possible NAPLs presence, and if revealed, how might this matter be best managed? There appears little likelihood that DNAPLs are present at the site

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For groundwater - Does plume capture efficiency seem adequate? If not quite perfect, could some minor "tweaking" take care of things, or do we need other extraction well locations? There are serious limitations to the groundwater extraction system requiring either additional extraction wells or new wells of greater capacity.

For portions successfully captured -How is the aquifer responding? There appears to be limited response to the pumping to date. Groundwater concentrations remain high, particularly in the eastern portion of the site.

Groundwater treatment -Groundwater treatment capacity is a concern given that it appears to limit the volume of groundwater that can be treated in a given period of time.

For Source control portions -The source control components of the remedy appear to be functioning as intended in the ROD. No improvements are needed at this time

Reuse - Any usage for habitat purpose? The landfill cap and surrounding areas function as wildlife habitat. This is a very beneficial use of the site

Cover Mowing Schedule - Would a period of mowing only half the cover acreage in a season be conducive to better habitat formation for birds/other wildlife? Mowing only one half of the site per year is being tried as a habitat improvement effort.

Recommendations and Follow-up Actions:

If we need to make any improvements in groundwater plume capture efficiency, what seems an advisable course of action at this time? Additional treatment and pumping capacity needs to be added to the current remedial system and/or a different remedial technology needs to be applied.

Any recommendations or follow-up about the residential sampling for water supply/ for methane or other gas seepage? None at this time

Has there been any serious property (portions of the site) offers to actively work or conduct activity on parts of the site? If so, what institutional controls would need to be imposed? None known at this time

Any significant "lessons learned" on day- to- day treatment works functioning that we want to pass along/memorialize? None

Protectiveness Statement(s): The remedy implemented at the CDCL site is protective of human health and the environment for the short term. All immediate human health threats have been addressed, and there are no contaminant exposures of concern. The landfill cap and gas collection and treatment systems appear to be preventing exposure to waste materials and minimizing the flow of water through the waste mass. The groundwater extraction wells appear to be reducing off-site contaminant migration, thereby protecting the nearby private water supply wells. The groundwater treatment system has maintained compliance with effluent limits most of the time protecting the surface waters receiving the treated wastewater. These conditions allow the remedy at the site to be protective of the public health and the environment for the short term. However, the limited hydraulic capacity of the treatment system is significantly reducing the effectiveness of the groundwater remedial effort. The limited treatment capacity combined with the low pumping capability of the extraction wells will, in time, cause the site not to be protective of the groundwater resource, if actions are not taken to improve groundwater treatment. The remedial objectives set for the site in the Record of Decision call for the groundwater to be returned to a beneficial use in a reasonable period of time. This has been defined to mean compliance with health based groundwater standards at the landfill edge. The current groundwater system has shown itself not capable of restoring groundwater quality at the site in a reasonable time frame. Long term monitoring results for the site do not show significant progress towards health based standards. Therefore improvements are needed in the groundwater related remedial actions at the site, to achieve long-term protectiveness. Long term protectiveness of the groundwater will be achieved by continuing, and possibly enhancing, the pump and treat system and maintaining and monitoring Institutional Controls until cleanup standards have been achieved at the compliance point.

Five-Year Review Report

I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identifies recommendations to address them.

The WDNR is preparing this Five-Year Review report pursuant to CERCLA § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with Section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f) (4) (ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above such levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The United States Environmental Protection Agency (U.S. EPA), Region 5, conducted the first five-year review of the remedy implemented at the City Disposal Corporation Landfill Superfund Site in Town of Dunn, Wisconsin. This review included a site visit on November 16, 1999. (See Figures 1 and 2) That review was conducted by the Remedial Project Manager (RPM) for the entire site.

This is the second five-year review for the CDCL Site. The triggering action for this review is the February 25, 2000, signature of the first five-year review report. This review will examine significant site developments over the past five years, including:

Efforts by the responsible parties to provide additional remedial capacity to address groundwater contamination at the site

As of the present time, hazardous substances remain on the CDCL site, which preclude unlimited use and unrestricted exposure.

II. Site Chronology

Table 1: Chronology of Site Events	
Event	Date
Landfill opened	August 1966
Landfill closure	January 1977
Operational problems noted - e.g., improper daily waste compaction and cover requirements, excess surface water runoff/infiltration, improper grading of slopes.	During primary operating history August 1966 to March 1975
NPL inclusion proposal	May 1983
NPL finalization	September 1984
RI/FS Negotiations	Concluded with AOC signed August 1987
RI/FS field investigation	Field work begun September 1988
Proposed Plan	Issued to public to begin comment period May 1992
Record of Decision	Signed September 28, 1992
Unilateral Administrative Order for RD/RA	Effective April 15, 1993
Explanation of Significant Difference (ESD)	Signed June 1997
Remedial Design - Source Control Interim Action - Groundwater Remedial Design - Groundwater Collection/Treatment	Design approved March 1995 Conducted 1998 November 1999
Remedial Action Construction - Source Control Remedial Action Construction - Groundwater	Conducted April - October 1995 Conducted November 1999 - June 2000
PCOR	Signed June 23, 2000
First Five Year Review Report Notice of Second Five-Year Report Prep.	Signed February 25, 2000 Placed September 30, 2004
Site Inspection (for second review)	May 25, 2004/September 21, 2004
Second Five Year Review Report	Signed February 23, 2005

III. Background

Physical Characteristics

The CDCL was constructed in the glacial materials of the Milton Moraine. Unconsolidated material was deposited during the advance and retreat of the glacial ice mass over this area. A very dense basal till underlies the majority of the site. This till consists of interlayered sequences of argillaceous sand and gravel. The till overlies bedrock in most areas and is thickest in areas of bedrock lows.

Overlying this till is a complex sequence of ice marginal, supraglacial ice contact and fluvial deposits. This material is non-uniformly distributed across the site. The resultant soils are a heterogeneous mix of materials in which the landfill was built.

Bedrock at the site is predominately sandstone and sandy dolomite and the bedrock surface forms a sort of saddle with bedrock highs on the east and west ends of the site with a north south trending topographic low in the center of the site. Depth to bedrock ranges from 50-150 feet at the site.

Because of the complex and diverse soil setting, groundwater flow at the site is also complex. Groundwater flows to the north from both the east and west ends of the landfill. This accounts for the distinct groundwater plumes leaving the east and west ends of the site. Groundwater also flows south from the southeast corner of the landfill through a series of englacial and proglacial deposits that dominate south of the fill area. (See Figure 3)

Badfish Creek appears to be a hydrologic high with water discharging from the creek to the groundwater. This limits contaminant migration to the east and may account, in part, for the high contamination readings seen in well nest PZ-11.

Hydraulic conductivity values vary considerably at the site resulting in a mix of groundwater velocities. In general groundwater movement at the site is slow with calculated velocities ranging from 1.7 to 437 feet per year. These low velocities also result in low recharge rates to the groundwater remediation wells. This limited recharge is one of the problems faced in remediating the site groundwater in an acceptable time frame.

Land and Resource Use

The CDCL site is located on approximately 38 acres of land in section 30, Town of Dunn Township 6 North, Range 10 East in Dane County, Wisconsin. The landfill was opened in the mid 1960s, and closed in 1977. During the years of the site's operation, the surrounding area was rural in character. With the growth of the Madison area, this characterization is changing. Household wastes, industrial wastes, general construction wastes, and debris were disposed at the site.

Contamination History

The CDCL site was divided into twelve disposal cells. Over the course of operation, five of these cells were filled or partially filled. One cell in particular, cell 12 was designated as a disposal area for liquid hazardous waste. Most liquid hazardous waste was brought to the site in drums, which were staged near cell 12 and then drained into the cell. After draining, the discarded drums were disposed within cell 6. Cell 12 lies in the eastern portion of the landfill and cell 6 is in the northwest portion. Industrial wastes included, but were not limited to, discarded solvents, paint wastes, oily residues, etc. Total waste volume is approximately 700,000 cubic yards.

Site inspections were conducted by WDNR during the course of landfill operation. Records compiled by WDNR indicated certain operating deficiencies. These included failure to always perform appropriate daily waste compaction and cover requirements, inadequate control of windblown debris, excess surface water runoff into landfill areas receiving toxic and hazardous wastes, and improper grading of slopes.

Initial Response

A Notification of Hazardous Waste site activity was submitted by WMWI to U.S. EPA pursuant to Section 103 (c) of CERCLA on June 9, 1981. An U.S. EPA contractor prepared a Preliminary Assessment of the CDCL on May 19, 1983. Pursuant to Section 105 of CERCLA, the site was placed on the National Priorities List (NPL) on September 21, 1984. In 1986 and 1987, U.S. EPA wrote special notice letters to various potentially responsible parties (PRPs) informing them of their potential liability involving the CDCL site. The letters offered them the opportunity to conduct a Remedial Investigation/Feasibility Study (RI/FS) of site conditions and to explore various remedial approaches.

On August 25, 1987, U.S. EPA and WDNR entered into an agreement with WMWI for private conduct of the RI/FS, pursuant to Sections 106(a), 122(a), and 122(d)(3) of CERCLA. In 1988, six additional parties joined this agreement.

Basis for Taking Action

The results of the RI defined two contaminated groundwater plumes at the CDCL. One plume extends north from the western portion of the landfill including cell 6. The second and more significant plume extends north from the eastern portion of the site including cell 12. Groundwater in both plumes is contaminated with several substances, including but not limited to tetrahydrofuran, toluene, xylene(s), various ketones, etc. Concentrations in the eastern plume are much higher than in the western plume. September 2004 quarterly groundwater monitoring results for onsite monitoring well PZ111, near cell 12, were 770 micrograms (ug)/liter(l) for various xylenes, 43,000 ug/l for 2-butanone, 650 ug/l for ethylbenzene, 60,000 ug/l for tetrahydrofuran, and 11,000 ug/l for toluene. Based on these groundwater concentrations, risks associated with the site exceeded upper boundaries as established in the National Contingency Plan (NCP).

IV. Remedial Actions

Remedy Selection

The FS was completed in March 1992. Pursuant to Section 117 of CERCLA, U.S. EPA published a notice of FS completion in May 1992, and also released to the public a remedial action proposed plan. After evaluation of public comment, U.S. EPA selected a remedy for the site as embodied in the Record of Decision (ROD) signed on September 28, 1992.

The remedy consisted of both source control and groundwater control components. Source control featured landfill gas collection and treatment, construction of a solid waste landfill cover over the majority of the CDCL site, and construction of a hazardous waste landfill cover over former disposal cells 6 and 12. Groundwater control was to consist of collection and treatment of contaminated groundwater, with monitoring of both effluent and groundwater. The WDNR did not concur with this remedy, citing local transportation concerns and the adoption of a hazardous waste cover over portions of the site.

In the FS the specific remedial objectives included:

Establish a landfill gas control system in compliance with the requirements of Chapter NR 506.08 of the Wisconsin Administrative Code (WAC) which regulates discharge of landfill gas.

Establish institutional controls, including deed restrictions, which limit future use of the landfill property and nearby groundwater.

Establish a landfill cap to control direct contact to waste materials and minimize water infiltration into the waste mass. Over most of the site, the clay cap cover materials comply with Chapter NR 504.07 WAC, which is analogous to the federal Resource Conservation and Recovery Act (RCRA) Subtitle D cover for non-hazardous waste landfills. However, CDCL cells 6 and 12 are capped with a double membrane cap consisting of a clay layer and a polyethylene membrane. This additional capping requirement was seen as necessary because of the volumes of liquid hazardous waste that were placed in these cells.

Construct a groundwater extraction and treatment system. The extraction system consists of pumping wells on the east and west sides of the landfill. (See Figure 4) The goal of the pumping system is to restore groundwater quality to Groundwater Preventive Action Limits or Enforcement Standards as set in NR 140, WAC at the time the ROD was signed. Treated groundwater discharged to Badfish Creek is regulated by the effluent limit requirements established by the Wisconsin Pollutant Discharge Elimination System (WPDES), and by effluent toxicity tests as established by WDNR.

Establish a groundwater monitoring well network and conduct periodic sampling to evaluate improvement in groundwater quality and protect nearby water supply wells.

Explanation of Significant Difference

In June 1997, U.S. EPA signed, with WDNR concurrence, an Explanation of Significant Difference (ESD) which allowed for groundwater extraction and interim treatment at the nearby MMSD. WDNR carefully reviewed the ability of the POTW to accept such groundwater for an interim period of about six months, and concluded that the POTW could successfully treat the groundwater. WMWI evaluated aquifer response during the performance of an interim groundwater action conducted during 1998, and in January 1999 submitted a report to U.S. EPA, which summarized findings and made further recommendations for permanent groundwater treatment.

Remedial Design

Remedial design and action/construction activities were privately funded via response to a unilateral administrative order issued to WMWI, under Section 106(a) authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, (CERCLA), as amended, 42 U.S.C. § 9606(a). Remedial design/remedial actions proceeded in two distinct phases at the site. Initial actions dealt with source control and were undertaken in 1995.

A Final Source Control Remedial Design Report was submitted to U.S. EPA and WDNR in February 1995. U.S. EPA indicated approval of this design to WMWI on March 30, 1995. The design differed in one source control aspect from that envisioned by the ROD. During the RI, a vadose zone of several feet in thickness seemed to exist from underneath the landfill to the top of the groundwater. During design, it was found that this separate vadose zone had disappeared as groundwater levels rose in response to higher precipitation levels. Hence, rather than performing separate soil vapor extraction steps in this zone, U.S. EPA believed that a combination of conventional landfill gas collection/treatment and subsequent groundwater extraction would suffice.

Design of the groundwater remedial system began in 1996. Results of treatability tests and preliminary design work conducted in late 1996 and early 1997 using onsite water samples gave nearly equal weight to treating groundwater by biological or physical-chemical means. U.S. EPA and WDNR worked with WMWI in devising a strategy that would determine the most efficient and cost-effective means of permanent treatment. During 1996, the initial extraction well was installed at the site as a part of a long-term pump test. Significant spatial variability in site hydrogeology was indicated near this well. To help better define longer-term extraction rates, and review contaminant concentration changes under pumping conditions, two additional extraction wells were installed. These wells were pumped and the contaminated groundwater was sent to MMSD for treatment while options for a permanent on site groundwater treatment option were evaluated.

In June 1999, WMWI entered into a contract for groundwater treatment design and construction services at CDCL. In October 1999, U.S. EPA met WMWI personnel and their consultants at CDCL to discuss groundwater treatment concepts and to lay out the most probable discharge route

for treated effluent. Prefinal design documentation was submitted November 12, 1999. The agencies provided conditional approval of the prefinal design package on November 23, 1999, and pointed out certain items needing correction and/or clarification in the final design. Final design was submitted December 20, 1999. This design package included satisfactory response to all U.S. EPA comments made concerning the prefinal design. After review, U.S. EPA indicated approval of the final groundwater treatment design on January 4, 2000.

For groundwater design, three extraction wells are located down gradient of cells 6 and 12. The primary means of treatment provided contaminated groundwater initially consisted of equalization, fixed film bioreactor usage to reduce organic content, a clarifier, and sludge management equipment. Subsequent modification resulted in phase out of the equalization step, and increasing bioreactor capacity to deal with increasing organic content of influent. (See Figure 5) Treated waters are routed through a small site wetland which subsequently drains to a swale and then into Badfish Creek. A treatment plant building houses the main pollution control equipment, as well as the electrical controls and high/low level alarms necessary to regulate pumping functions. A network of monitoring wells helps provide data needed to evaluate overall performance of the remediation system.

Remedy Construction Implementation

The remedial systems for the CDCL were implemented as described below.

Institutional Controls

Institutional controls (ICs) are those non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use. Although it is U.S. EPA's expectation that treatment or engineering controls will be the primary mechanism in dealing with most of the threat posed by release of hazardous substances at a given site, ICs can play an important role in the function of a given remedy. ICs may be used when contamination is first discovered, and when remedies are ongoing and residual contamination remains at levels that do not allow for unrestricted land use and unlimited exposure, even though other cleanup measures may be operating. The National Contingency Plan (NCP) emphasizes that ICs are meant to supplement engineering controls, and that ICs will rarely be the sole remedy at a site.

For the CDCL site, the September 1992 ROD made specific mention of ICs. In ROD discussion of components of the Selected Remedy, one remedy component is given as ...Institutional controls including deed restrictions, limiting the land use of the landfill and landfill property, and groundwater use restrictions...

It is appropriate then for the Five Year Review Report to consider whether ICs called for in the remedy have been implemented, and what impact ICs may be having on the functioning and protectiveness of the remedy. The Unilateral Administrative Order (UAO) issued in the spring of 1993 for conduct of the RD/RA necessary to implement ROD components called for the filing by the responding party of certain Restrictions and Covenants Upon Real Estate at the site with

appropriate officials, and the notification of U.S. EPA that this had in fact occurred.

In accordance with this UAO provision, on June 8, 1993, Waste Management of Wisconsin, Inc., complied by filing a Declaration of Restrictions and Covenants Upon Real Estate concerning the CDCL site with the Dane County Register of Deeds. Four specific land use restrictions were noted. These restrictions may be summarized as:

- There shall be no interference with construction, operation, maintenance, monitoring or efficacy of any component, structure or improvement relating to the remedial action.
- No operation on the property shall extract, consume or otherwise use the groundwater underlying the property or adjoining properties except for the purposes of carrying out the remedial action.
- There shall be no excavation, grading or movement of soils, no waste disposal, and no construction or placement of any residences, buildings, or structures, except for the use of implementing, monitoring, or maintaining the remedial action.
- There shall be no construction, installation, or use of any buildings, wells, pipes, roads, ditches, or any other structures that may affect the construction, physical integrity, operation and maintenance, or efficacy of the remedial action.

Hence, at the CDCL site, there has been active implementation of institutional controls as envisioned by the ROD. It is appropriate to verify that the land and groundwater restrictions appear in the chain of title at the Site and that there are no encumbrances that would negatively impact the effectiveness of the restrictions. A title commitment (or current ownership and encumbrances report similar to what is obtained with a title commitment) showing the current status of the title and associated encumbrances will assist in this determination. U.S. EPA and WDNR will request that Waste Management of Wisconsin conduct such a title search and perform an evaluation of the matter of IC impact upon the remedy, and report its findings to U.S. EPA within six months of the date of this 5 Year Review Report. This evaluation will include an assessment of State requirements barring the siting of wells within 1200 feet of a landfill, including a discussion of whether that buffer is sufficient to protect against exposure to any off-site migration of contaminated groundwater. U.S. EPA will evaluate the response. If a revision is required, U.S. EPA will require Waste Management of Wisconsin to file an amended proprietary control. Should any prudent steps be necessary, U.S. EPA believes these can be implemented through an exchange of correspondence, or more formally if required through exercise of the "Additional Work" provisions of the now prevailing Consent Decree, which is the current enforcement instrument vehicle for the CDCL site. Should U.S. EPA fail to receive the necessary or timely cooperation from Waste Management of Wisconsin in performing title search and IC remedy impact evaluation, U.S. EPA reserves the right to directly perform such evaluation. (In late 2004, by mutual agreement, the UAO was converted into a Consent Decree to cover functioning of remaining, mainly monitoring and operation and maintenance, tasks still needed at the site).

Paragraph three of the Declaration of Restrictions and Covenants upon Real Estate states that the

restrictions and covenants shall run with the land and be enforceable by U.S. EPA or the State of Wisconsin. The State of Wisconsin believes that it can enforce such covenants and restrictions.

Source Control Measures

Following the March 1995 design approval for source control, WMWI evaluated various construction proposals and awarded a construction contract in May 1995. The contractor mobilized during that month and U.S. EPA and WDNR personnel met WMWI and contractor representatives at the site at that time.

Source control work began with the installation of the landfill gas (LFG) collection and treatment system. Ten gas extraction wells and 14 gas trench collection risers were installed. LFG installation also included lateral piping and condensate knockout structures. Well installation and risers were installed in late May to early June 1995. Laterals and condensate collection headers were installed from early to late June 1995. Trenches for the LFG collection system were lined with geotextile filter fabric, and used sand as bedding material for the header pipes. Submersible condensate pumps were installed at each condensate knockout location. Condensate storage capacity varies from 120 to 460 gallons at three locations. Following this work, the LFG system flare was installed.

By mid-June 1995, so as to prepare the site for capping installation, topsoil was stripped from the existing landfill cap and put into stockpiles. After this, grading work was done. The contractor constructed a silt fence at various site locations as discussed in design plans to help control erosion. One area of concern that had lead WDNR to not concur with the ROD was volume of truck traffic in the area should it prove necessary to bring in significant quantities of clay for cap construction. However, a clay deposit/borrow area was found on the site. After physical evaluation of this material, it was found to be adequate to use in remedial construction. Representatives of the remedial design firm performed density testing of the clay/compacted clay for WMWI. This firm also reviewed construction contractor progress on behalf of WMWI. Excavation of borrow areas proceeded, with stockpiling of the soils.

Work on the site cap was conducted mainly during July and August 1995. Prior to clay placement, bentonite matting was first placed down and moistened with water. A 2-foot thick clay cover over the entire landfill was installed.

Scrapers were used to haul clay to the site. Initially, clay was put down in 8-inch thick loose lifts. Compacting equipment was then used to consolidate the clay into 6-inch recompacted lifts. A skid loader was used to level clay around cap penetrations, such as LFG riser pipes. In accordance with construction quality assurance procedures, testing for appropriate thickness, density, and hydraulic conductivity was conducted following the second and fourth lift applications over a given site area.

At Cells 6 and 12, following clay installation, further grading of the clay was done to help prepare a smooth surface. This smooth surface was necessary for placing the geosynthetic liner. Geosynthetic liner system installation began with placement over Cells 6 and 12 of a 40-mil thick

high density polyethylene geomembrane. System installation continued with the placement of a second layer, consisting of a geocomposite drainage layer fused between two layers of geotextile. About 210,000 square feet of landfill area was covered with geosynthetic system materials. Most geomembrane sections were seamed together using a fusion process. However, extrusion welding was used for patch/repair areas, or any fusion-joined seam that failed a pressure test.

By September 1995, after geosynthetic installation was complete, a peripheral toe drain using limestone chips was constructed across the downhill edges of Cells 6 and 12. Geotextile filter fabric was placed over the limestone. Then, a rooting zone layer of soil was placed over the clay throughout the site. This soil came from on site borrow materials. The rooting zone layer, some 18 inches thick, was put down in one layer, which was not compacted. After the rooting zone was put down, topsoil placement occurred. By October 1995, the topsoil layer was seeded, fertilized, and mulched.

Groundwater Collection and Treatment

In accordance with the 1997 ESD, during 1998 an interim groundwater remedial action was conducted at the site. The purpose of the interim action was to begin active groundwater remediation, evaluate desirable groundwater extraction rates, monitor changes in groundwater concentrations, and serve as a pilot study for choosing the best means of long-term groundwater treatment.

From September to December 1997, WMWI installed extraction pumps, electrical hookup, piping, tanks, etc. Temporary off-site hauling of collected groundwater began in early 1998. For 6-7 months, about 90,000 gallons per week of contaminated groundwater was extracted at the CDCL site, and then taken to the MMSD. The interim action ceased in November 1998. During early 1999 U.S. EPA received a report which summarized interim action results and committed WMWI to complete permanent treatment system design and install the system. After soliciting requests for proposal and reviewing bids submitted, WMWI awarded a contract for design completion/groundwater treatment system construction in June 1999.

On March 14, 2000 a pre-construction meeting was held with regard to expected delivery and assembly of groundwater treatment components. Both WDNR and U.S. EPA participated. Roles and responsibilities were reviewed. WMWI noted that the consultant design firm of Arcadis/Geraghty & Miller would serve as treatment system operator during the first year after construction was done. Northshore Environmental Construction (NEC) was retained to arrange for major component delivery, treatment building assembly and substantive review by local authorities of building methods, zoning, electrical inspections, etc. The treatment building area now has been assigned a street address by the local township, specifically 1847 Sand Hill Road. During the meeting, health and safety procedures and construction quality assurance steps were reviewed. Participants agreed that weekly progress meetings be held on Monday mornings for the duration of the construction period to review the past week's activity and provide a forecast of upcoming events.

On May 30, 2000, representatives of U.S. EPA conducted a pre-final inspection of the system. On

system start-up, the sump pump and blower performed properly. However, one of the extraction well pumps was not serviceable; a switch in lead connections was necessary. Also, a cover needed to be placed over the circuit junction box. Some "housekeeping" items in the treatment building were also noted. These included leakage around the building exhaust fan, leakage under the pull down service door, and a missing bolt in the service door.

On June 5, 2000 U.S. EPA visited the site to see if the essential items had been corrected. This had been done. All extraction well pumps were now working properly. Also at this time, biological seed material was obtained from the Hagen Farm NPL site groundwater treatment system, and put into the CDCL site bioreactor. The auto dialer for the remote alert system was also wired in at this time. While it would take about 2-3 weeks for the biological floc to grow and attain satisfactory treatment populations, the actions taken as of June 5, 2000 at CDCL allowed for the completion of the Preliminary Close-Out Report.

Operation and Maintenance Experience

Source Control Measures

Following installation of capital components of the LFG control system in 1995, as described elsewhere in this report, installation of gas temperature and flow measuring equipment was conducted from April-June 1996. Background monitoring and analysis of perimeter gas monitoring probes was conducted in July 1996. Initially, a 4-inch flare nozzle was utilized. However, in 1997 this was changed to a 2-inch flare nozzle, to help increase landfill gas exit velocity and improve flare flame stability. Also, the size of the pilot light gas orifice was increased to improve ignition of the landfill gas. Finally, there did not appear to be sufficient LFG generation on-going at the CDCL site to warrant continuous LFG system operation. An adjustable timer was added to better match gas generation rates. Landfill gasses will be checked for hazardous substances. Checking for cap stability, signs of erosion, etc., is also a part of source control monitoring. U.S. EPA made note of one such indication to WMWI during its November 1999 field visit.

Subsequent inspection of the landfill cover indicated the establishment of a good vegetative mat. Grass cover mowing is necessary on an as-needed basis. In 1998, minor repair of the protective fence placed around the site was necessary due to damage from a fallen tree. During November 1999, U.S. EPA visited the site to check on groundwater remediation system construction progress, and to check on cover condition. During that visit, grass growth/cap condition looked good in all areas except possibly one. About 150 yards west of the blower/flare station, there were the beginnings of some channelization in the cap leading down the north slope of the landfill. These small channels are still grassy, but much less so than surrounding areas. The channels end at the bottom of the slope at a monitoring well cluster with the tag of "GP-12," which would seem to correspond to the location B-12RR shown on some site maps. U.S. EPA brought this to the attention of WMWI, and suggested rechecking this area in spring 2000. U.S. EPA believes this action corrected an otherwise developing erosion condition.

In 2003, WMWI performed maintenance on the flare blower system. This consisted of replacing

the main electrical breaker in the load center that supplies power to the gas extraction system, and also installing a new motor on the gas-venting pump. WMWI also arranged for replacement of sampling valves in the gas extraction well network. The ignition of the flare system for combusting vented gases from the landfill was added in 2003 to the logic hardware for the control panel and data acquisition system circuit. Current programming is for the system to automatically run for a cycle of 400 minutes, after which the system is shut down for 400 minutes. This cycle is then repeated.

Groundwater Collection and Treatment

The groundwater treatment system has been the focus of most maintenance activities. Treatment plant upsets occurred in 2002 and 2003 resulting in short term system shutdowns. In early 2004 a plant upset led to significant violations of the effluent standard for THF. These exceedances led to enforcement actions by the WDNR and efforts by WMWI to improve the reliability of the treatment technology. During September – October 2004 WMWI pilot tested the use of White Karbon as a supplemental means of reducing the organic chemical concentration in the effluent. Particular concern was paid to controlling the THF effluent concentrations.

Based on data reported by WMWI the White Karbon provided very little or no additional treatment to the wastewater stream. Effluent concentrations measured at several times during September and October 2004 showed virtually no changes between input and output levels. This failure has been attributed to bacterial growth in the media bed leading to biofouling. For this reason full scale application of the White Karbon technology was not pursued and will not be used at this site.

During early 2005 it is anticipated that WMWI will plan field tests for using oxygen injection into the contaminated groundwater zone to stimulate in situ biological or chemical remediation. Currently WMWI is searching for vendors to conduct the pilot testing. This pilot test is another attempt to identify a practical effective means of reducing groundwater contaminant concentrations as required in the 1992 ROD.

Remediation Results to Date -Interpretation/Discussion

Monitoring of the groundwater remedial system occurs on a routine basis. Operational parameters undergoing routine measurement include flow rate, pH and bioreactor temperature. Groundwater is sampled in the first and third quarters of each year for volatile organic chemicals. Semi volatile organic parameters, certain landfill indicator parameters and select heavy metals are tested in groundwater during the third quarter of each year. Four private water supplies are tested once per year for volatile organic chemicals. Results are then compiled and reported to the agencies on a monthly and quarterly basis. Because the treated groundwater is subsequently discharged to a surface stream, WDNR has established appropriate parameter specific effluent limits and monitoring requirements through the WPDES program. In addition to the specific chemical parameters, whole effluent toxicity testing is also required annually.

Consistent with the finding that the remedy at the site is protective of human health, the testing of

the private water supply wells for VOCs has never detected any level of organic chemical contamination in drinking water.

Review of the monthly effluent reports indicates that for the majority of the time, treatment removal efficiencies run on the order of 97-99% removal. Occasionally, effluent limitations have been exceeded. In 2002 the effluent limit for tetrahydrofuran was exceeded 5 times. In 2003 there was a single THF effluent limit exceedance.

In early 2004, a nutrient feed pump failure resulted in an exceedance of THF effluent levels. In January and March the THF concentration in the effluent waters was 4749 and 2232 ug/l respectively. This compares to a discharge standard of 100 ug/l. The severity of the January and March exceedances led the WDNR to issue a Notice of Noncompliance, citing violations of Wisconsin wastewater management codes, to WMWI in May 2004. Corrections to the nutrient feed pump were made. WMWI also contracted with a firm located much closer physically to the site than the previous consultant, such that when manned operating services were needed they could be performed on a timelier basis. Based on these operational changes and the results of a WDNR site visit in May 2004, the WDNR believed the source of the effluent limit problems had been corrected. However, in December 2004 another plant upset occurred resulting in an effluent THF concentration of 1700 ppb. This upset again caused a temporary shut down of the remedial system.

Operational changes made by WMWI have attempted to address the problems associated with consistently meeting effluent limit requirements. Problems with meeting effluent limits are one of the shortcomings of the current groundwater remedial system. In addition to the periodic exceedances of effluent limits, as designed the treatment system does not have adequate capability to treat the volumes of groundwater necessary to remediate the existing groundwater contamination in a reasonable time frame. This lack of treatment capability closely relates to another shortcoming of the remedial system; the lack of pumping capacity. Historically the groundwater pumping system has operated at 1-4 gallons per minute. This rate appears to be near the upper limit for the 3-extraction wells long term pumping capability. Pumping the individual wells at rates of 6 gpm or more results in the wells going dry in a matter of a few hours. The 1996 pump test on well EW-1R showed the well going dry in less than one hour of pumping at 6 gpm. While the current low pumping rate allows for the bioreactors to have a retention time of about 23 hours which is needed to provide adequate treatment to achieve effluent limits, based on groundwater quality data trends this low pumping rate does not seem to be remediating the contaminated groundwater at an acceptable rate. Figures 6-11 show the changes in groundwater quality on the east side of the landfill over the last 12 years for select parameters. The wells, PZ-11D and 18RR are on the east side of the landfill as shown on Figure 5. Well PZ-11D is 320 feet from the waste edge and is 61 feet deep. Well 18RR is adjacent to the east edge of the waste mass and is 35 feet deep. Both wells are downgradient of the site. The parameters selected acetone, toluene and tetrahydrofuran are major constituents of the groundwater plume east of the site. The data trend shown in these figures show little improvement in groundwater quality as a result of the source control and groundwater remediation efforts. As noted groundwater pumping began in June 2000. In the nearly 5 years of active remediation the groundwater quality as represented by these two wells has shown limited improvement. The data on these graphs support the assertion

that improved groundwater remedial efforts are needed.

To further document site groundwater conditions, Attachment I summarizes the September 2004 sampling results. This attachment shows detected concentrations exceeding state groundwater standards. Figure 12 shows the well locations.

Low pumping capacity not only moves a small volume of groundwater in a given period of time but results in a very limited capture zone for each well. Results from the 1996 pumping test, using a sustainable pumping rate of only 1.9 gpm, showed drawdowns of less than 1 foot in monitoring wells PZ 8A, 8B and 8C installed 32-39 feet from pumping well EW-1R. Wells PZ-6, 11S, 11I, 11D and 19 showed no drawdown as a result of the pumping. This limited capture area further hinders remedial efforts at the site.

The September 1992 ROD establishes the remedial goal for groundwater. The ROD states, "The purpose of the groundwater portion of the final remedy is to return usable groundwater at the site to its beneficial use, as an actual or potential groundwater source, within a reasonable time." The ROD further defines return to beneficial use as compliance with state groundwater quality Preventive Action Limits at the edge of the landfilled waste.

The groundwater quality trends shown in Figures 6-11 do not show remedial progress consistent with these goals. Remedial efforts over the last several years are not making adequate progress towards returning groundwater to its beneficial use.

Because of the limited treatment and pumping capability of the current groundwater remedial system, it seems modifications and capacity improvements are needed to meet the remedial goals established for the site in the ROD.

Remedial technologies other than traditional pump and treat could solve the groundwater problems. In situ chemical or biological technologies may work. Some of the chemical contaminants present at CDCL are likely amenable to in situ methods. These questions could be answered during pilot testing being planned by WMWI for 2005.

V. Progress Since the Last Review

This is the second five-year review report to be developed for the site. Significant site developments over the past five years include:

- Construction completion of the on-site groundwater treatment plant, with corresponding completion of the Preliminary Close-Out Report in June 2000

- Improvements to the source control components, including on/off cycle programming for landfill gas flare system, and the gas venting pump motor installed in 2003.

- Failure of the White Karbon during a pilot test to adequately treat the incoming

wastewater from the groundwater pumping system. This means other methods will need to be found to reliably maintain compliance with WPDES effluent standards.

VI. Five-Year Review Process

Administrative Components

On May 11, 2004, U.S. EPA sent a letter to WDNR and WMWI informing them of the need to compile a second Five-Year Review Report for the CDCL site. Mr. Mike Schmoller of WDNR served as primary contact/Project Manager assigned to the CDCL site on behalf of WDNR. Mr. Mike Peterson serves in a similar capacity with WMWI. A site visit was made on May 25, 2004, during which this group discussed some of the data needs and inspections necessary to write a report. WMWI also arranged for their technical consultants, BT2Inc, to be present at the May 25 site visit. Sue Pastor, as U.S. EPA Community Involvement Coordinator for the CDCL site, also received a copy of the May 11, 2004 letter. On September 30, 2004 Ms. Pastor placed an ad in the Wisconsin State Journal to inform interested parties of the Five-Year Review Report effort. During the May 25 site visit, agency representatives considered next steps. One item discussed was mowing frequency of the CDCL cover. This is done annually, usually in mid-summer. Consideration was given to a policy of mowing only about half the cover acreage in a given year, so as to provide better wildlife habitat. WMWI reportedly employs this practice at another site.

Community Notification and Involvement

On September 30, 2004, via the Wisconsin State Journal, U.S. EPA informed the community that a Five-Year Review Report compilation effort had commenced for the CDCL site. The notice referenced important efforts made at the site in the last five years. Readers of the notice were given the location of the local site information repository, and were provided the name, mailing address, toll-free and direct dial phone numbers, and e-mail address of the Community Involvement Coordinator (CIC) for further information. The notice requested that interested persons relay any information of interest, comments, or site matters to the CIC.

Document Review

In preparing this report the WDNR relied on the technical documents shown in the reference section below. These few documents are just a small subset of the large number of documents produced for this site over the years of investigation and remediation.

Data Review

Groundwater data considered were discussed in previous sections of this report and the most recent groundwater data is summarized in Attachment 1.

Site Inspection

U.S. EPA made arrangements with consultants from the firm BT2 and the responding PRP,

WMWI, to be present along with U. S. EPA and WDNR representatives at May and September 2004 site inspections. During the September 2004 inspection preparations were ongoing for the White Karbon pilot test. A survey of the site showed the cap to be in good condition and it appeared the site and fencing were being well maintained. No other operation or maintenance concerns were noted during the site walk over.

Interviews

Interview notes from the May 25 meeting are attached to this report. Interview contacts were Mark Huber of BT2 and Mike Peterson of WMWI. No other interviews were conducted as part of the review.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

As discussed, the groundwater remedy is not performing as intended when the ROD was signed. Acceptable progress towards returning the site groundwater to beneficial use is not occurring. The source control and groundwater remedies have made the site protective of human health and the environment in the short term. Direct contact health concerns have been eliminated through the landfill capping. Private drinking water supplies near the site are free of site related contamination. However, based on current groundwater quality trends in select monitoring wells around the site, returning groundwater quality to compliance with health based groundwater standards at the landfill edge is not occurring in a reasonable time frame.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Yes, these items remain the same. There have not been substantial changes in the nearby land use to significantly alter exposure assumptions. Also, there have been no changes in the toxicity data used to derive the most important groundwater quality standards for this site. Since there has not been a change in groundwater quality standards, there have been no changes in the cleanup levels or remedial action objectives for this site. In addition there have been no changes in state or federal policy regarding where the groundwater quality standards should be applied. The edge of waste filling is still the compliance point for the site.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

The site remedies are still protective of public health and the environment in the short term. Continued sampling of select nearby private water supply wells shows no site related contamination present in any of the samples. However, the current remedies will

not be protective of the groundwater resource in the long term. Based on the site data, the groundwater contamination does not appear to be improving at a rate envisioned when the ROD was written. At present the groundwater contamination does not pose unacceptable public health risks, however reasonable progress towards beneficial use of the groundwater is not being made.

Also it is probable that in the future there will be land use changes in the area around the site. Additional single family residential development will occur near the site. These new homes will likely rely on private wells for their water supply. These wells will be set back from the landfill a minimum of 1200 feet as required in state regulations. Based on our current understanding of contaminant migration at the site these wells should remain free of site related contamination. However, the longer it takes to bring site groundwater quality into compliance with health based standards the greater the potential risk to these future well users.

VIII. Issues

There is one key issue, which needs to be followed over the long term at the CDCL site. This issue is the effectiveness of the groundwater remedy at the site. Within this issue several questions need to be answered.

1. Can the pumping capacity of the current wells be increased to provide for a greater capture zone and remediate larger quantities of water during a given time period?
2. Can the treatment capacity of the current biological system be increased, particularly with regards to THF, to allow for greater pumping of the extraction wells?
3. Can other remedial technologies, such as in situ biological or chemical treatments, be used to remediate the impacted groundwater?

**TABLE 2
SUMMARY OF SITE ISSUES**

1. Increasing hydraulic capacity of the current or modified pumping system
2. Improve/enhance treatment capacity of the current biological system
3. Evaluate and implement other remedial technologies at the site

The groundwater data trends at the site do not show significant improvement since initiation of the groundwater pumping. To comply with the remedial objectives set in the ROD more aggressive active remedial measures are required. How and when these more aggressive measures are implemented are the key issues for this site in the next several years.

IX. Recommendations and Follow-up Actions

These site recommendations should be followed up on to

Issue #1 – Develop an effective site remedy or remedies to address the groundwater contamination at the site.

Recommendation for Issue # 1 –Work with WMWI to identify and pilot test one or more remedial technologies for addressing groundwater impacts at the site.

X. Protectiveness Statement

The remedy implemented at the CDCL site is protective of human health and the environment for the short term. All immediate human health threats have been addressed, and there are no contaminant exposures of concern. The landfill cap and gas collection and treatment systems

appear to be preventing exposure to waste materials and minimizing the flow of water through the waste mass. The groundwater extraction wells appear to be reducing off-site contaminant migration, thereby protecting the nearby private water supply wells. The groundwater treatment system has maintained compliance with effluent limits most of the time protecting the surface waters receiving the treated wastewater. These conditions allow the remedy at the site to be protective of the public health and the environment for the short term. However, the limited hydraulic capacity of the treatment system is significantly reducing the effectiveness of the groundwater remedial effort. The limited treatment capacity combined with the low pumping capability of the extraction wells will, in time, cause the site not to be protective of the groundwater resource if actions are not taken to improve groundwater treatment. The remedial objectives set for the site in the Record of Decision call for the groundwater to be returned to a beneficial use in a reasonable period of time. This has been defined to mean compliance with health based groundwater standards at the landfill edge. The current groundwater system has shown itself not capable of restoring groundwater quality at the site in a reasonable time frame. Long term monitoring results for the site do not show significant progress towards health based standards. Therefore improvements are needed in the groundwater related remedial actions at the site, to achieve long-term protectiveness. Long term protectiveness of the groundwater will be achieved by continuing, and possibly enhancing, the pump and treat system and maintaining and monitoring Institutional Controls until cleanup standards have been achieved at the compliance point.

XI. Next Review

The next review will be completed within 5 years of the signature of this report.

REFERENCE MATERIALS

1. Groundwater Control Operable Unit September 2004 Discharge Monitoring Report, City Disposal Corporation Landfill, BT2, October 26, 2004
2. Groundwater Control Operable Unit October 2004 Discharge Monitoring Report, City Disposal Corporation Landfill, BT2, December 7, 2004
3. Groundwater Monitoring Plan Revision, City Disposal Landfill, Wisconsin Department of Natural Resources, January 14, 1003
4. Pumping Test Report, City Disposal Corporation Landfill, Waste Management of Wisconsin, Inc, July 1996
5. Record of Decision, City Disposal Landfill, U.S. EPA, September 1992
6. Final Remedial Investigation Report City Disposal Corporation Landfill, P.E. LaMoreaux and Associates, January 13, 1992
7. Semi-Annual Environmental Data Submittal City Disposal Landfill, Waste Management of Wisconsin, Inc, November 2, 2004

INTERVIEW RECORD

Site Name: City Disposal Corporation Landfill

EPA ID No.: WID980610646

Subject: Topics to be discussed in the Five-Year Review Report/Site Visit

Time: Mid-morning to early afternoon

Date: May 25, 2004

Type: Telephone XX Visit Other

Location of Visit: at the CDCL Site

Contact Made By:

Name: Russell D. Hart

Title: RPM Organization: U.S. EPA - Region 5 - Superfund

Individuals Contacted:

Name: Mike Schmoller , WDNR - SCR - Project Manager, Phone # (608) 275-3303

Michael L. Peterson, P.E., - Waste Management - Closed Sites Management Group
(262) 253-8626 ext. 115

Mark R. Huber, P.E. - consultant for WMWI for CDCL - BT2, Inc. - (608) 224-2828 ext. 213

Summary of Conversation

The parties met at the CDCL site on May 25, 2004. One item reviewed included performance of pilot test to experiment with blends of proprietary filtration agents ("White Karbon") which may have potential to enhance organics removal within the site's groundwater treatment system. Also, the RPM discussed the Five-Year Review Report to be developed and distributed an outline of major report topics to be addressed. The parties toured the effluent discharge channel, leading to a site wetland area, and walked the vegetative cover. Cover growth seemed plentiful. Mowing frequency has been about once/year - usually mid-summer. WMWI noted that at other (closed) landfills, they have experimented with mowing only half the cover acreage in a given year, doing the other half in alternate years. The reason is to see if allowing more vegetative growth might also serve as a means of enhancing bird and other desirable wild animal cover.

Site Inspection Checklist

I. SITE INFORMATION	
Site name: City Disposal Corporation Landfill	Date of inspection: 5/25/2004
Location and Region: Town of Dunn, Wisconsin Region 5	EPA ID: WID980610646
Agency, office, or company leading the five-year review: WDNR	Weather/temperature:
Remedy Includes: (Check all that apply) <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input checked="" type="checkbox"/> Groundwater pump and treatment Surface water collection and treatment Other _____ </div> <div style="width: 45%;"> <input type="checkbox"/> Monitored natural attenuation <input type="checkbox"/> Groundwater containment <input type="checkbox"/> Vertical barrier walls </div> </div>	
Attachments: Inspection team roster attached Site map attached	
II. INTERVIEWS (Check all that apply)	
1 O&M site manager _____ <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date </div> Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ Problems, suggestions: <input checked="" type="checkbox"/> Report attached See Interview Summary _____	
2 O&M staff _____ <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ Problems, suggestions: Report attached _____ _____	
3. Local regulatory authorities and response agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply. <div style="margin-bottom: 20px;"> Agency _____ Contact _____ <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date Phone no. </div> Problems, suggestions: Report attached _____ _____ </div> <div> Agency _____ Contact _____ <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date Phone no. </div> Problems, suggestions: Report attached _____ _____ </div>	

Agency <u>NA</u> Contact _____ <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date Phone no. </div> Problems; suggestions; <input type="checkbox"/> Report attached _____ _____				
Agency <u>NA</u> Contact _____ <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Name Title Date Phone no. </div> Problems; suggestions; <input type="checkbox"/> Report attached _____ _____				
4. Other interviews (optional) : Report attached.				
<u>NONE</u>				
III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents <input checked="" type="checkbox"/> O&M manual <input checked="" type="checkbox"/> As-built drawings <input checked="" type="checkbox"/> Maintenance logs Remarks _____	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	N/A N/A N/A
2.	Site-Specific Health and Safety Plan <input type="checkbox"/> Contingency plan/emergency response plan Remarks _____	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	N/A N/A
3.	O&M and OSHA Training Records Remarks <u>NA</u>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	N/A
4.	Permits and Service Agreements <input type="checkbox"/> Air discharge permit <input checked="" type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> Up to date	N/A N/A N/A

	Other permits <u>N/A</u>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks _____			
5.	Gas Generation Records	<input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	N/A
	Remarks _____			
6.	Settlement Monument Records	<input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	N/A
	Remarks _____			
7.	Groundwater Monitoring Records	<input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks _____			
8.	Leachate Extraction Records	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
9.	Discharge Compliance Records			
	Air	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Water (effluent)	<input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	Remarks _____			
10.	Daily Access/Security Logs	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	Remarks _____			
IV. O&M COSTS				
1.	O&M Organization			
	State in-house	<input type="checkbox"/> Contractor for State		
	PRP in-house	<input checked="" type="checkbox"/> Contractor for PRP		
	Federal Facility in-house	<input type="checkbox"/> Contractor for Federal Facility		
	Other _____			
2.	O&M Cost Records <i>NOT CHECKED</i>			
	Readily available	<input type="checkbox"/> Up to date		
	Funding mechanism agreement in place			
	Original O&M cost estimate _____		Breakdown attached	
	Total annual cost by year for review period if available			
	From _____ To _____	_____	Breakdown attached	
	Date Date	Total cost		
	From _____ To _____	_____	Breakdown attached	
	Date Date	Total cost		
	From _____ To _____	_____	Breakdown attached	
	Date Date	Total cost		
	From _____ To _____	_____	Breakdown attached	
	Date Date	Total cost		

From _____ Date	To _____ Date	Total cost _____	<input type="checkbox"/> Breakdown attached					
3. Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: _____ _____ _____ _____ _____								
V. ACCESS AND INSTITUTIONAL CONTROLS <input type="checkbox"/> Applicable <input type="checkbox"/> N/A								
A. Fencing								
1. Fencing damaged <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Gates secured <input type="checkbox"/> N/A Remarks <u>FENCING OK</u>								
B. Other Access Restrictions								
1. Signs and other security measures <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A Remarks <u>OK</u>								
C. Institutional Controls (ICs)								
1. Implementation and enforcement Site conditions imply ICs not properly implemented Yes No <input checked="" type="checkbox"/> N/A Site conditions imply ICs not being fully enforced Yes No <input checked="" type="checkbox"/> N/A Type of monitoring (e.g., self-reporting, drive by) _____ Frequency _____ Responsible party/agency _____ Contact _____ <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;"></td> <td style="width: 20%; text-align: center;">Name</td> <td style="width: 20%; text-align: center;">Title</td> <td style="width: 10%; text-align: center;">Date</td> <td style="width: 10%; text-align: center;">Phone no.</td> </tr> </table> Reporting is up-to-date Yes No N/A Reports are verified by the lead agency Yes No N/A Specific requirements in deed or decision documents have been met Yes No N/A Violations have been reported Yes No N/A Other problems or suggestions: Report attached _____ _____ _____					Name	Title	Date	Phone no.
	Name	Title	Date	Phone no.				
2. Adequacy <input checked="" type="checkbox"/> ICs are adequate <input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A Remarks _____ _____ _____								
D. General								

1.	Vandalism/trespassing	Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident
Remarks _____			
2.	Land use changes on site	<input type="checkbox"/> N/A	
Remarks <u>NOT ON SITE</u>			
3.	Land use changes off site	<input type="checkbox"/> N/A	
Remarks <u>NEW HOUSING</u>			
VI. GENERAL SITE CONDITIONS			
A. Roads Applicable <input checked="" type="checkbox"/> N/A			
1.	Roads damaged	Location shown on site map	Roads adequate <input type="checkbox"/> N/A
Remarks _____			
B. Other Site Conditions			
Remarks _____			
VII. LANDFILL COVERS <input checked="" type="checkbox"/> Applicable N/A			
VIII. VERTICAL BARRIER WALLS Applicable <input checked="" type="checkbox"/> N/A			
IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A			
A. Groundwater Extraction Wells, Pumps, and Pipelines <input checked="" type="checkbox"/> Applicable N/A			
1	Pumps, Wellhead Plumbing, and Electrical		
	<input checked="" type="checkbox"/> Good condition	<input checked="" type="checkbox"/> All required wells properly operating	Needs Maintenance N/A
Remarks _____			
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances		
	<input checked="" type="checkbox"/> Good condition	Needs Maintenance	
Remarks _____			
3.	Spare Parts and Equipment <input checked="" type="checkbox"/> OK		
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Good condition	<input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided

Remarks _____			
B. Surface Water Collection Structures, Pumps, and Pipelines		<input type="checkbox"/> Applicable	XX N/A
C. Treatment System		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Treatment Train (Check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input type="checkbox"/> Filters <input type="checkbox"/> Additive (e.g., chelation agent, flocculent) <input type="checkbox"/> Others <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually _____	<input checked="" type="checkbox"/> Bioremediation	
Remarks <u>CONCERNS ABOUT OPERATION</u>			
2.	Electrical Enclosures and Panels (properly rated and functional) N/A X Good condition Needs Maintenance	Remarks _____	
3.	Tanks, Vaults, Storage Vessels N/A X Good condition Proper secondary containment Needs Maintenance	Remarks _____	
4.	Discharge Structure and Appurtenances N/A X Good condition Needs Maintenance	Remarks _____	
5.	Treatment Building(s) N/A X Good condition (esp. roof and doorways) Needs repair X Chemicals and equipment properly stored	Remarks _____	
6.	Monitoring Wells (pump and treatment remedy) X Properly secured/locked X Functioning X Routinely sampled X Good condition X All required wells located Needs Maintenance N/A	Remarks _____	
D. Monitoring Data			
8.	Monitoring Data X Is routinely submitted on time X Is of acceptable quality		
9.	Monitoring data suggests: Slow remedial progress		

☐ Groundwater plume is effectively contained
declining

☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation (Not Applicable) *NA*

X. OTHER REMEDIES (N/A)

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

SEE ATTACHED REPORT

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

GOOD O&M OVERALL

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

SEE ATTACHED REPORT

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

NOT APPLICABLE

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ATTACHMENT 1
SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUMMARY

ATTACHMENT I

LICENSE # 00037

DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 1)

FID # 113113880

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards		Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
				PAL	/ ES							
02FB	040927	CHLORIDE-DISSOLVED AS CL	0.5600	125.0000	250.0000	MG/L	NR140		J	0.500	0.3200	1.1000
02TB	040927	DICHLOROMETHANE	0.5000	0.5000	5.0000	UG/L	NR140	P	J	5.000	0.4000	1.0000
03FB	040922	BERYLLIUM-TOTAL AS BE	0.2000	0.4000	4.0000	UG/L	NR140		J	4.000	0.1100	0.3700
	040922	COPPER-TOTAL AS CU	3.3000	130.0000	1300.0000	UG/L	NR140		J	25.000	1.1000	3.7000
	040922	MANGANESE-TOTAL AS MN	0.2000	25.0000	50.0000	UG/L	NR140		J	25.000	0.0600	0.2000
B07RR	040913	1,2-DICHLOROPROPANE	0.9000	0.5000	5.0000	UG/L	NR140	P	J	5.000	0.3000	1.0000
	040913	BENZENE	6.0000	0.5000	5.0000	UG/L	NR140	E		5.000	0.3000	1.0000
	040913	DICHLOROMETHANE	0.4000	0.5000	5.0000	UG/L	NR140		J	5.000	0.4000	1.0000
	040913	DIETHYL PHTHALATE	3.0000			UG/L	NR140		J	10.000	3.0000	10.0000
	040913	IRON-DISSOLVED AS FE	3.5000	0.1500	0.3000	MG/L	NR140	E		0.100	0.0170	0.0570
	040913	MANGANESE-DISSOLVED AS MN	100.0000	25.0000	50.0000	UG/L	NR140	E		15.000	0.5700	1.9000
	040913	TETRAHYDROFURAN	2.0000	10.0000	50.0000	UG/L	NR140		J	10.000	2.0000	7.0000
	040913	TRICHLOROETHYLENE	0.2000	0.5000	5.0000	UG/L	NR140		J	5.000	0.2000	0.7000
	040913	VINYL CHLORIDE	2.0000	0.0200	0.2000	UG/L	NR140	E	J	2.000	0.6000	2.0000
B07X	040913	1,2-DICHLOROPROPANE	2.0000	0.5000	5.0000	UG/L	NR140	P	J	20.000	1.0000	3.0000
	040913	BENZENE	20.0000	0.5000	5.0000	UG/L	NR140	E		20.000	1.0000	3.0000
	040913	DICHLOROMETHANE	2.0000	0.5000	5.0000	UG/L	NR140	P	J	20.000	2.0000	7.0000
	040913	DIETHYL PHTHALATE	6.0000			UG/L	NR140		J	9.000	3.0000	10.0000
	040913	ETHYLBENZENE	1.0000	140.0000	700.0000	UG/L	NR140		J	20.000	1.0000	3.0000
	040913	IRON-DISSOLVED AS FE	6.6000	0.1500	0.3000	MG/L	NR140	E		0.100	0.0170	0.0570

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD) and the Limit of Quantification (LOQ)

EX = NR140.28 (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16.

11/09/04

ATTACHMENT I

LICENSE # 00037

—DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 2)

FID # 113113880

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards PAL / ES	Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
B07X	040913	MANGANESE-DISSOLVED AS MN	63.3000	25.0000 50.0000	UG/L	NR140	E		15.000	0.5700	1.9000
	040913	TETRAHYDROFURAN	14.0000	10.0000 50.0000	UG/L	NR140	P	J	40.000	8.0000	27.0000
	040913	TOLUENE	2.0000	200.0000 1000.0000	UG/L	NR140		J	20.000	1.0000	3.0000
	040913	VINYL CHLORIDE	5.0000	0.0200 0.2000	UG/L	NR140	E	J	7.000	2.0000	7.0000
B18RR	040917	CHLORIDE-DISSOLVED AS CL	178.0000	125.0000 250.0000	MG/L	NR140	P		2.500	1.6000	5.3000
	040917	DICHLOROMETHANE	710.0000	0.5000 5.0000	UG/L	NR140	P*	J	4000.000	320.0000	1100.0000
	040917	ETHYLBENZENE	920.0000	140.0000 700.0000	UG/L	NR140	P*		4000.000	260.0000	870.0000
	040917	IRON-DISSOLVED AS FE	22.7000	0.1500 0.3000	MG/L	NR140	P*		0.100	0.0170	0.0570
	040917	ISOPHORONE	3.0000		UG/L	NR140		J	9.000	2.0000	7.0000
	040917	M&P-XYLENE	1900.0000	1000.0000 10000.0000	UG/L	NR140	P		8000.000	500.0000	1700.0000
	040917	MANGANESE-DISSOLVED AS MN	66.7000	25.0000 50.0000	UG/L	NR140	P*		15.000	0.5700	1.9000
	040917	TETRAHYDROFURAN	100000.0000	10.0000 50.0000	UG/L	NR140	P*		8000.000	1700.0000	5700.0000
P04B	040927	CHLOROETHANE	20.0000	80.0000 400.0000	UG/L	NR140		J	250.000	12.0000	40.0000
	040927	CIS-1,2-DICHLOROETHENE	71.0000	7.0000 70.0000	UG/L	NR140	P*		250.000	8.0000	27.0000
	040927	DICHLOROMETHANE	10.0000	0.5000 5.0000	UG/L	NR140	P*	J	120.000	10.0000	33.0000
	040927	ETHYLBENZENE	19.0000	140.0000 700.0000	UG/L	NR140		J	120.000	8.0000	27.0000
	040927	IRON-DISSOLVED AS FE	0.8700	0.1500 0.3000	MG/L	NR140	P*		0.100	0.0170	0.0570
	040927	M&P-XYLENE	33.0000	1000.0000 10000.0000	UG/L	NR140		J	250.000	16.0000	53.0000
	040927	MANGANESE-DISSOLVED AS MN	57.0000	25.0000 50.0000	UG/L	NR140	P*		15.000	0.5700	1.9000
	040927	O-XYLENE	14.0000	1000.0000 10000.0000	UG/L	NR140		J	250.000	9.0000	30.0000

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD)

and the Limit of Quantification (LOQ)

EX = NR140.28 (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16.

ATTACHMENT I

LICENSE # 00037

- DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 3)

FID # 113113880

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards		Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
				PAL	/ ES							
P04B	040926	TETRAHYDROFURAN	4700.0000	10.0000	50.0000	UG/L	NR140	P*		1000.000	210.0000	700.0000
	040927	TRICHLOROETHYLENE	21.0000	0.5000	5.0000	UG/L	NR140	P*		120.000	6.0000	20.0000
	040927	VINYL CHLORIDE	28.0000	0.0200	0.2000	UG/L	NR140	P*	J	46.000	15.0000	50.0000
P04C	040927	BENZENE	0.3000	0.5000	5.0000	UG/L	NR140		J	5.000	0.3000	1.0000
	040927	IRON-DISSOLVED AS FE	1.8000	0.1500	0.3000	MG/L	NR140	P*		0.100	0.0170	0.0570
	040927	MANGANESE-DISSOLVED AS MN	74.0000	25.0000	50.0000	UG/L	NR140	P*		15.000	0.5700	1.9000
P05A	040917	1,1-DICHLOROETHANE	7.0000	85.0000	850.0000	UG/L	NR140		J	40.000	3.0000	10.0000
	040917	BENZENE	6.0000	0.5000	5.0000	UG/L	NR140	P*	J	40.000	2.0000	7.0000
	040917	DICHLOROMETHANE	7.0000	0.5000	5.0000	UG/L	NR140	P*	J	40.000	3.0000	10.0000
	040917	DIETHYL PHTHALATE	6.0000			UG/L	NR140		J	9.000	3.0000	10.0000
	040917	IRON-DISSOLVED AS FE	11.8000	0.1500	0.3000	MG/L	NR140	P*		0.100	0.0170	0.0570
	040917	MANGANESE-DISSOLVED AS MN	177.0000	25.0000	50.0000	UG/L	NR140	P*		15.000	0.5700	1.9000
	040917	TETRAHYDROFURAN	1200.0000	10.0000	50.0000	UG/L	NR140	P*		80.000	17.0000	57.0000
P08A	040917	BENZENE	0.6000	0.5000	5.0000	UG/L	NR140	P	J	5.000	0.3000	1.0000
	040917	CHLOROETHANE	1.0000	80.0000	400.0000	UG/L	NR140		J	10.000	0.5000	2.0000
	040917	CIS-1,2-DICHLOROETHENE	16.0000	7.0000	70.0000	UG/L	NR140	P		10.000	0.3000	1.0000
	040917	IRON-DISSOLVED AS FE	4.1000	0.1500	0.3000	MG/L	NR140	P*		0.100	0.0170	0.0570
	040917	MANGANESE-DISSOLVED AS MN	1710.0000	25.0000	50.0000	UG/L	NR140	P*		15.000	0.5700	1.9000
	040917	P-CRESOL	1.0000			UG/L	NR140		J	9.000	1.0000	3.0000
	040917	TETRACHLOROETHYLENE	12.0000	0.5000	5.0000	UG/L	NR140	P*		5.000	0.2000	0.7000

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD)

and the Limit of Quantification (LOQ)

EX = NR140.2B (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16 .

11/09/04

ATTACHMENT 1

LICENSE # 00037

-DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 4)

FID # 113113000

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards PAL / ES	Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
POBA	040917	TRANS-1,2-DICHLOROETHENE (TOTA	0.4000	20.0000 100.0000	UG/L	NR140		J	10.000	0.3000	1.0000
	040917	TRICHLOROETHYLENE	5.0000	0.5000 5.0000	UG/L	NR140	P*		5.000	0.2000	0.7000
	040917	VINYL CHLORIDE	3.0000	0.0200 0.2000	UG/L	NR140	P*		2.000	0.6000	2.0000
PW01	040922	ARSENIC-TOTAL AS AS	0.0980	5.0000 50.0000	UG/L	NR140		J	1.000	0.0400	0.1300
	040922	BERYLLIUM-TOTAL AS BE	0.4000	0.4000 4.0000	UG/L	NR140	P		4.000	0.1100	0.3700
	040922	CHROMIUM-TOTAL AS CR	1.9000	10.0000 100.0000	UG/L	NR140		J	10.000	0.8200	2.7000
	040922	LEAD-TOTAL AS PB	2.2000	1.5000 15.0000	UG/L	NR140	P	J	5.000	1.6000	5.3000
	040922	MANGANESE-TOTAL AS MN	0.1000	25.0000 50.0000	UG/L	NR140		J	25.000	0.0600	0.2000
	040922	NICKEL-TOTAL AS NI	1.0000	20.0000 100.0000	UG/L	NR140		J	40.000	0.9100	3.0000
	040922	NITROGEN-TOTAL NITRATE AS N	9.5000	2.0000 10.0000	MG/L-N	NR140	P		0.250	0.1600	0.6000
	040922	VANADIUM-TOTAL AS V	1.1000	6.0000 30.0000	UG/L	NR140		J	50.000	1.1000	3.7000
PW04	040922	BERYLLIUM-TOTAL AS BE	0.2000	0.4000 4.0000	UG/L	NR140		J	4.000	0.1100	0.3700
	040922	CHROMIUM-TOTAL AS CR	1.4000	10.0000 100.0000	UG/L	NR140		J	10.000	0.8200	2.7000
	040922	IRON-TOTAL AS FE	0.0110	0.1500 0.3000	MG/L	NR140		J	0.100	0.0110	0.0370
	040922	MANGANESE-TOTAL AS MN	0.1000	25.0000 50.0000	UG/L	NR140		J	25.000	0.0600	0.2000
	040922	NITROGEN-TOTAL NITRATE AS N	9.2000	2.0000 10.0000	MG/L-N	NR140	P		0.100	0.0720	0.2400
	040922	SELENIUM-TOTAL AS SE	0.3100	10.0000 50.0000	UG/L	NR140		J	1.000	0.1100	0.3700
PW06	040922	BERYLLIUM-TOTAL AS BE	0.3000	0.4000 4.0000	UG/L	NR140		J	4.000	0.1100	0.3700
	040922	CADMIUM-TOTAL AS CD	0.0300	0.5000 5.0000	UG/L	NR140		J	0.200	0.0100	0.0330
	040922	CHROMIUM-TOTAL AS CR	1.3000	10.0000 100.0000	UG/L	NR140		J	10.000	0.8200	2.7000

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD)

and the Limit of Quantification (LOQ)

EX = NR140.26 (NR500.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16.

ATTACHMENT I

LICENSE # 00037

DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 5)

FTD # 113113880

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards PAL / ES	Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
PW06	040922	MANGANESE-TOTAL AS MN	0.2000	25.0000 50.0000	UG/L	NR140		J	25.000	0.0600	0.2000
	040922	NICKEL-TOTAL AS NI	1.5000	20.0000 100.0000	UG/L	NR140		J	40.000	0.9100	3.0000
	040922	NITROGEN-TOTAL NITRATE AS N	2.9000	2.0000 10.0000	MG/L-N	NR140	P		0.050	0.0360	0.1200
PW09	040922	ARSENIC-TOTAL AS AS	0.1200	5.0000 50.0000	UG/L	NR140		J	1.000	0.0400	0.1300
	040922	BERYLLIUM-TOTAL AS BE	0.3000	0.4000 4.0000	UG/L	NR140		J	4.000	0.1100	0.3700
	040922	CADMIUM-TOTAL AS CD	0.0150	0.5000 5.0000	UG/L	NR140		J	0.200	0.0100	0.0330
	040922	CHROMIUM-TOTAL AS CR	1.0000	10.0000 100.0000	UG/L	NR140		J	10.000	0.8200	2.7000
	040922	NITROGEN-TOTAL NITRATE AS N	6.9000	2.0000 10.0000	MG/L-N	NR140	P		0.250	0.1800	0.6000
PZ09	040922	SELENIUM-TOTAL AS SE	0.2100	10.0000 50.0000	UG/L	NR140		J	1.000	0.1100	0.3700
	040917	CIS-1,2-DICHLOROETHENE	8.0000	7.0000 70.0000	UG/L	NR140	P		40.000	1.0000	3.0000
	040917	DICHLOROMETHANE	3.0000	0.5000 5.0000	UG/L	NR140	P	J	20.000	2.0000	7.0000
	040917	TETRACHLOROETHYLENE	1.0000	0.5000 5.0000	UG/L	NR140	P	J	20.000	1.0000	3.0000
	040917	TRICHLOROETHYLENE	130.0000	0.5000 5.0000	UG/L	NR140	E		20.000	1.0000	3.0000
PZ11D	040922	ACETONE	15000.0000	200.0000 1000.0000	UG/L	NR140	E		17000.000	1200.0000	4000.0000
	040922	DICHLOROMETHANE	510.0000	0.5000 5.0000	UG/L	NR140	E	J	2500.000	200.0000	670.0000
	040922	ETHYLBENZENE	160.0000	140.0000 700.0000	UG/L	NR140	P	J	2500.000	160.0000	530.0000
	040922	IRON-DISSOLVED AS FE	0.0510	0.1500 0.3000	MG/L	NR140		J	0.100	0.0170	0.0570
	040922	ISOPHORONE	6.0000		G/L	NR140		J	9.000	2.0000	7.0000
	040922	M&P-XYLENE	370.0000	1000.0000 10000.0000	UG/L	NR140		J	5000.000	310.0000	1000.0000
	040922	MANGANESE-DISSOLVED AS MN	125.0000	25.0000 50.0000	UG/L	NR140	E		15.000	0.5700	1.9000

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD)

and the Limit of Quantification (LOQ)

EX = NR140.28 (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16.

11/09/04

ATTACHMENT I

LICENSE # 00037

DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 6)

FID # 113113000

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards PAL / ES	Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
PZ11D	040922	METHYL ETHYL KETONE (MEK)	56000.0000	90.0000 460.0000	UG/L	NR140	E		5000.000	1400.0000	4700.0000
	040922	O-XYLENE	190.0000	1000.0000 10000.0000	UG/L	NR140		J	5000.000	180.0000	600.0000
	040922	TETRAHYDROFURAN	66000.0000	10.0000 50.0000	UG/L	NR140	E		5000.000	1100.0000	3700.0000
	040922	TOLUENE	7600.0000	200.0000 1000.0000	UG/L	NR140	E		2500.000	180.0000	600.0000
PZ11I	040922	ACETONE	11000.0000	200.0000 1000.0000	UG/L	NR140	E		17000.000	1200.0000	4000.0000
	040922	DICHLOROMETHANE	400.0000	0.5000 5.0000	UG/L	NR140	E	J	2500.000	200.0000	670.0000
	040922	DIETHYL PHTHALATE	3.0000		UG/L	NR140		J	9.000	3.0000	10.0000
	040922	ETHYLBENZENE	650.0000	140.0000 700.0000	UG/L	NR140	P		2500.000	160.0000	530.0000
	040922	IRON-DISSOLVED AS FE	12.7000	0.1500 0.3000	MG/L	NR140	E		0.100	0.0170	0.0670
	040922	ISOPHORONE	2.0000		UG/L	NR140		J	9.000	2.0000	7.0000
	040922	M&P-XYLENE	1800.0000	1000.0000 10000.0000	UG/L	NR140	P		5000.000	310.0000	1000.0000
	040922	MANGANESE-DISSOLVED AS MN	74.8000	25.0000 50.0000	UG/L	NR140	E		15.000	0.5700	1.9000
	040922	METHYL ETHYL KETONE (MEK)	43000.0000	90.0000 460.0000	UG/L	NR140	E		5000.000	1400.0000	4700.0000
	040922	TETRAHYDROFURAN	60000.0000	10.0000 50.0000	UG/L	NR140	E		5000.000	1100.0000	3700.0000
	040922	TOLUENE	11000.0000	200.0000 1000.0000	UG/L	NR140	E		2500.000	180.0000	600.0000
	040922	ACETONE	2.0000	200.0000 1000.0000	UG/L	NR140		J	34.000	2.0000	7.0000
PZ11S	040922	IRON-DISSOLVED AS FE	0.1800	0.1500 0.3000	MG/L	NR140	P		0.100	0.0170	0.0670
	040922	MANGANESE-DISSOLVED AS MN	235.0000	25.0000 50.0000	UG/L	NR140	E		15.000	0.5700	1.9000
	040922	TETRAHYDROFURAN	23.0000	10.0000 50.0000	UG/L	NR140	P		10.000	2.0000	7.0000
PZ17	040913	MANGANESE-DISSOLVED AS MN	1.3000	25.0000 50.0000	UG/L	NR140		J	15.000	0.5700	1.9000

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD) and the Limit of Quantification (LOQ)

EX = NR140.28 (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16.

ATTACHMENT I

LICENSE # 00037

DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 7)

FID # 113113880

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards		Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
				PAL	/ ES							
PZ17	040913	NITROGEN-DISSOLVED NITRATE AS	2.2000	2.0000	10.0000	MG/L-N	NR140	P		0.050	0.0360	0.1200
	040913	TETRACHLOROETHYLENE	11.0000	0.5000	5.0000	UG/L	NR140	E		5.000	0.2000	0.7000
	040913	TRICHLOROETHYLENE	9.0000	0.5000	5.0000	UG/L	NR140	E		5.000	0.2000	0.7000
PZ210B	040913	1,1,1-TRICHLOROETHANE	0.3000	40.0000	200.0000	UG/L	NR140		J	5.000	0.2000	0.7000
	040913	1,2-DICHLOROETHANE	0.4000	0.5000	5.0000	UG/L	NR140		J	5.000	0.4000	1.0000
	040913	1,2-DICHLOROPROPANE	0.7000	0.5000	5.0000	UG/L	NR140	P	J	5.000	0.3000	1.0000
	040913	BENZENE	2.0000	0.5000	5.0000	UG/L	NR140	P		5.000	0.3000	1.0000
	040913	CIS-1,2-DICHLOROETHENE	13.0000	7.0000	70.0000	UG/L	NR140	P		10.000	0.3000	1.0000
	040913	DICHLOROMETHANE	0.4000	0.5000	5.0000	UG/L	NR140		J	5.000	0.4000	1.0000
	040913	IRON-DISSOLVED AS FE	0.4900	0.1500	0.3000	MG/L	NR140	E		0.100	0.0170	0.0570
	040913	MANGANESE-DISSOLVED AS MN	400.0000	25.0000	50.0000	UG/L	NR140	E		15.000	0.5700	1.9000
	040913	TETRACHLOROETHYLENE	1.0000	0.5000	5.0000	UG/L	NR140	P		5.000	0.2000	0.7000
	040913	TETRAHYDROFURAN	3.0000	10.0000	50.0000	UG/L	NR140		J	10.000	2.0000	7.0000
	040913	TRANS-1,2-DICHLOROETHENE (TOTA	0.5000	20.0000	100.0000	UG/L	NR140		J	10.000	0.3000	1.0000
	040913	TRICHLOROETHYLENE	24.0000	0.5000	5.0000	UG/L	NR140	E		5.000	0.2000	0.7000
PZ21S	040913	VINYL CHLORIDE	4.0000	0.0200	0.2000	UG/L	NR140	E		2.000	0.6000	2.0000
	040913	1,2-DICHLOROPROPANE	0.3000	0.5000	5.0000	UG/L	NR140		J	5.000	0.3000	1.0000
	040913	BENZENE	0.4000	0.5000	5.0000	UG/L	NR140		J	5.000	0.3000	1.0000
	040913	CHLOROETHANE	2.0000	80.0000	400.0000	UG/L	NR140		J	10.000	0.5000	2.0000
	040913	CIS-1,2-DICHLOROETHENE	32.0000	7.0000	70.0000	UG/L	NR140	P		10.000	0.3000	1.0000

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD) and the Limit of Quantification (LOQ)

EX = NR140.28 (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16.

11/09/04

ATTACHMENT 1

LICENSE # 00037

DUNN (CITY DISPOSAL LANDFILL)
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 8)

PID # 113113000

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards PAL / ES	Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
PZ21S	040913	TETRACHLOROETHYLENE	12.0000	0.5000 5.0000	UG/L	NR140	E		5.000	0.2000	0.7000
	040913	TOLUENE	0.5000	200.0000 1000.0000	UG/L	NR140		J	5.000	0.4000	1.0000
	040913	TRANS-1,2-DICHLOROETHENE (TOTA	0.5000	20.0000 100.0000	UG/L	NR140		J	10.000	0.3000	1.0000
	040913	TRICHLOROETHYLENE	25.0000	0.5000 5.0000	UG/L	NR140	E		5.000	0.2000	0.7000
	040913	VINYL CHLORIDE	0.6000	0.0200 0.2000	UG/L	NR140	E	J	2.000	0.6000	2.0000
PZ22D	040927	CHLORIDE-DISSOLVED AS CL	268.0000	125.0000 250.0000	MG/L	NR140	E		2.500	1.6000	5.3000
	040927	IRON-DISSOLVED AS FE	0.9200	0.1500 0.3000	MG/L	NR140	E		0.100	0.0170	0.0570
	040927	MANGANESE-DISSOLVED AS MN	1380.0000	25.0000 50.0000	UG/L	NR140	E		15.000	0.5700	1.9000
PZ22S	040927	CHLORIDE-DISSOLVED AS CL	226.0000	125.0000 250.0000	MG/L	NR140	P		2.500	1.6000	5.3000
	040927	CHLOROETHANE	1.0000	80.0000 400.0000	UG/L	NR140		J	10.000	0.5000	2.0000
	040927	MANGANESE-DISSOLVED AS MN	39.6000	25.0000 50.0000	UG/L	NR140	P		15.000	0.5700	1.9000
	040926	TETRAHYDROFURAN	300.0000	10.0000 50.0000	UG/L	NR140	E		20.000	4.0000	13.0000
RPZ08B	040922	CIS-1,2-DICHLOROETHENE	8.0000	7.0000 70.0000	UG/L	NR140	P		80.000	2.0000	7.0000
	040922	DICHLOROMETHANE	18.0000	0.5000 5.0000	UG/L	NR140	E		40.000	3.0000	10.0000
	040922	IRON-DISSOLVED AS FE	0.0270	0.1500 0.3000	MG/L	NR140		J	0.100	0.0170	0.0570
	040922	TETRAHYDROFURAN	7400.0000	10.0000 50.0000	UG/L	NR140	E		1000.000	210.0000	700.0000
	040922	TRICHLOROETHYLENE	3.0000	0.5000 5.0000	UG/L	NR140	P	J	40.000	2.0000	7.0000
	040922	VINYL CHLORIDE	5.0000	0.0200 0.2000	UG/L	NR140	E	J	15.000	5.0000	17.0000
RPZ08C	040922	DICHLOROMETHANE	38.0000	0.5000 5.0000	UG/L	NR140	E	J	250.000	20.0000	67.0000
	040922	MANGANESE-DISSOLVED AS MN	216.0000	25.0000 50.0000	UG/L	NR140	E		15.000	0.5700	1.9000

P* = within the Design Management Zone (DMZ) and property boundary

P = NR140 Preventative Action Limit exceedance

E = NR140 Enforcement Standard exceedance

J = Sample Concentration is between the Limit of Detection (LOD)

and the Limit of Quantification (LOQ)

EX = NR140.25 (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16.

11/09/04

ATTACHMENT I

LICENSE # 00037

DUNN (CITY DISPOSAL) LANDFILL
 SEPTEMBER 2004 SEMI-ANNUAL ENVIRONMENTAL DATA SUBMITTAL
 Identification of NR140 Exceedances and J-Flags (page 9)

FID # 113113880

Well	Sample Date	Parameter	Sample Concentration	NR140 Standards PAL / ES	Units	Type of Standard	Type Of Exceedance	Qualifier	RL	LOD	LOQ
RPZ08C	040922	TETRAHYDROFURAN	11000.0000	10.0000 50.0000	UG/L	NR140	E		1000.000	210.0000	700.0000

P* = within the Design Management Zone (DMZ) and property boundary	J = Sample Concentration is between the Limit of Detection (LOD)
P = NR140 Preventative Action Limit exceedance	and the Limit of Quantification (LOQ)
E = NR140 Enforcement Standard exceedance	EX = NR140.28 (NR508.19) Exemptions granted for exceedance

SPECIAL NOTE: J-Flags are detections of an analyte between the Limit of Detection (LOD) and the Limit of Quantification (LOQ). It is Severn Trent's opinion that J-Flag detections as well as PAL exceedances below the reporting limit (RL) are not quantifiable numbers and should not constitute exceedances; however these values are being reported in compliance with NR 507.26 (3)(b) and NR 140.16 .

11/09/04

FIGURE 1. SITE LOCATION.

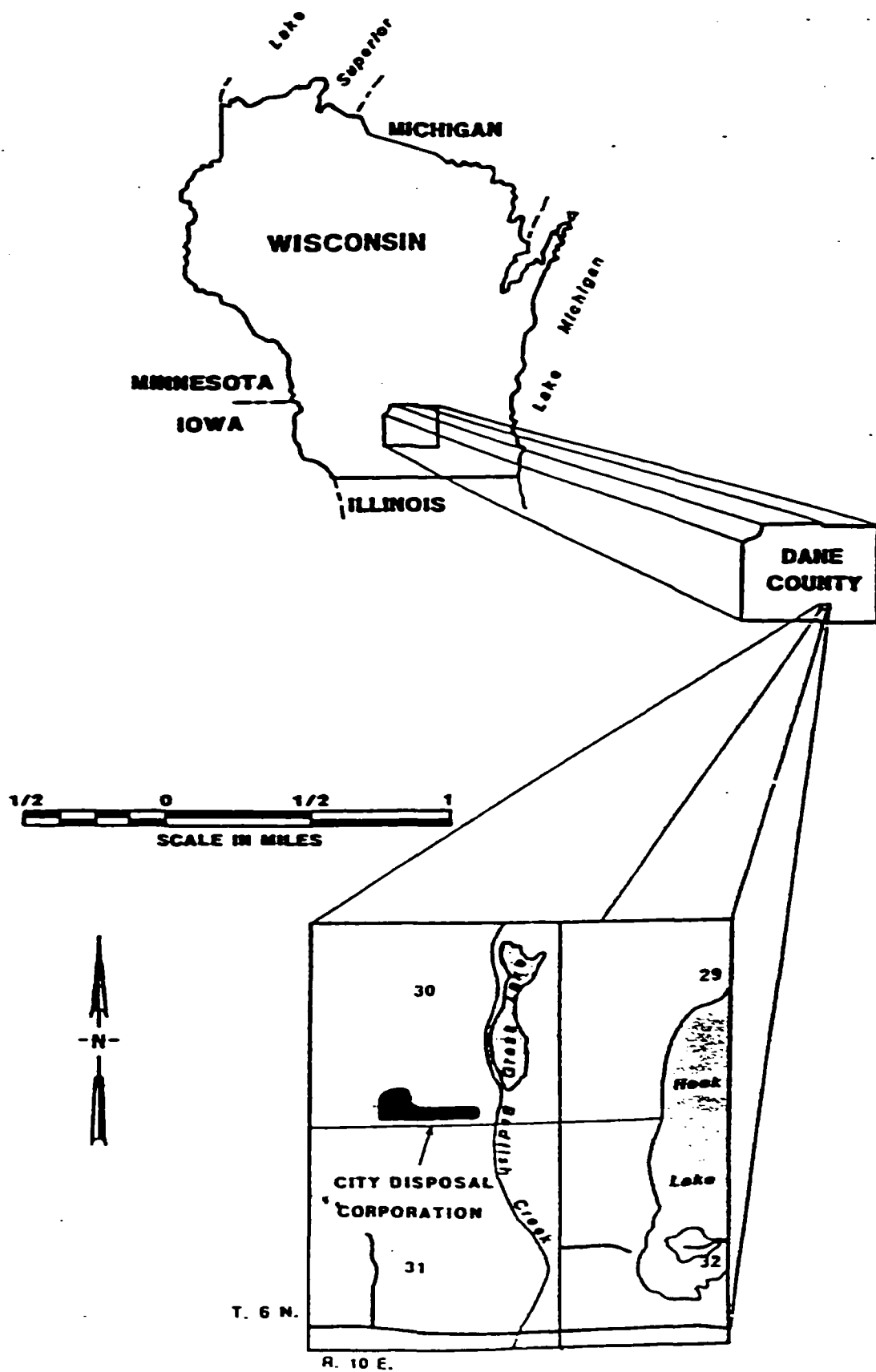


FIGURE 1

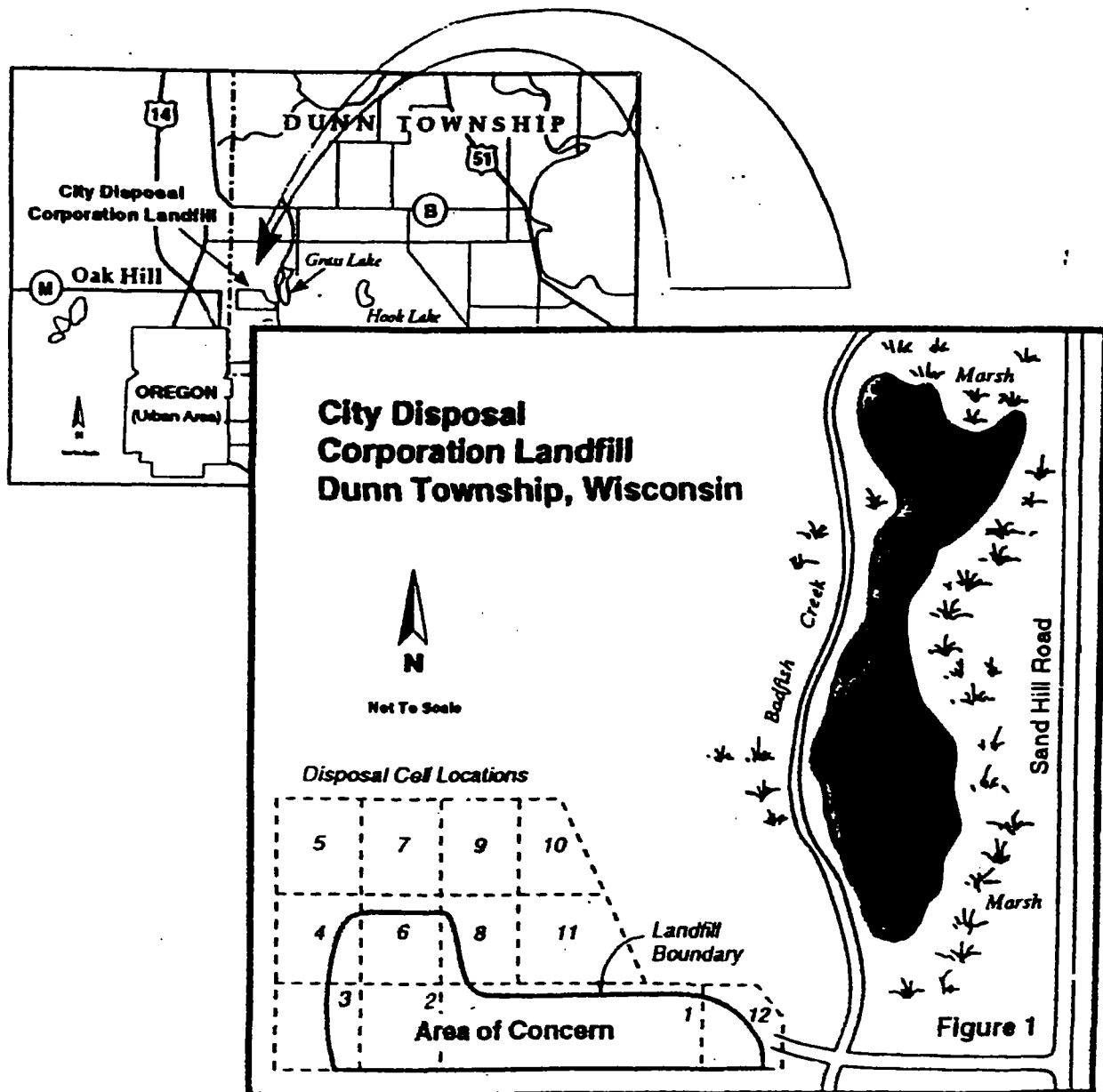
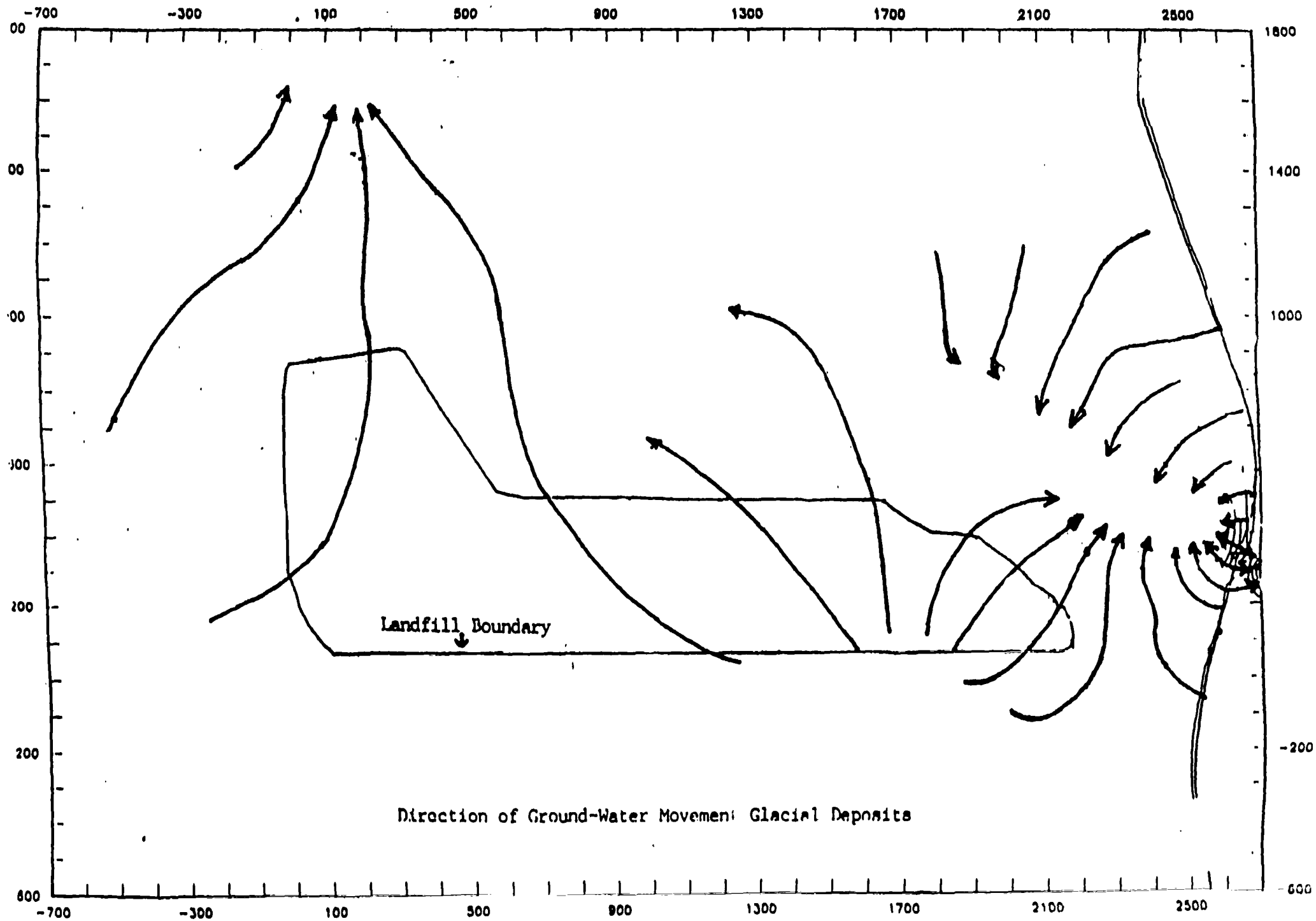
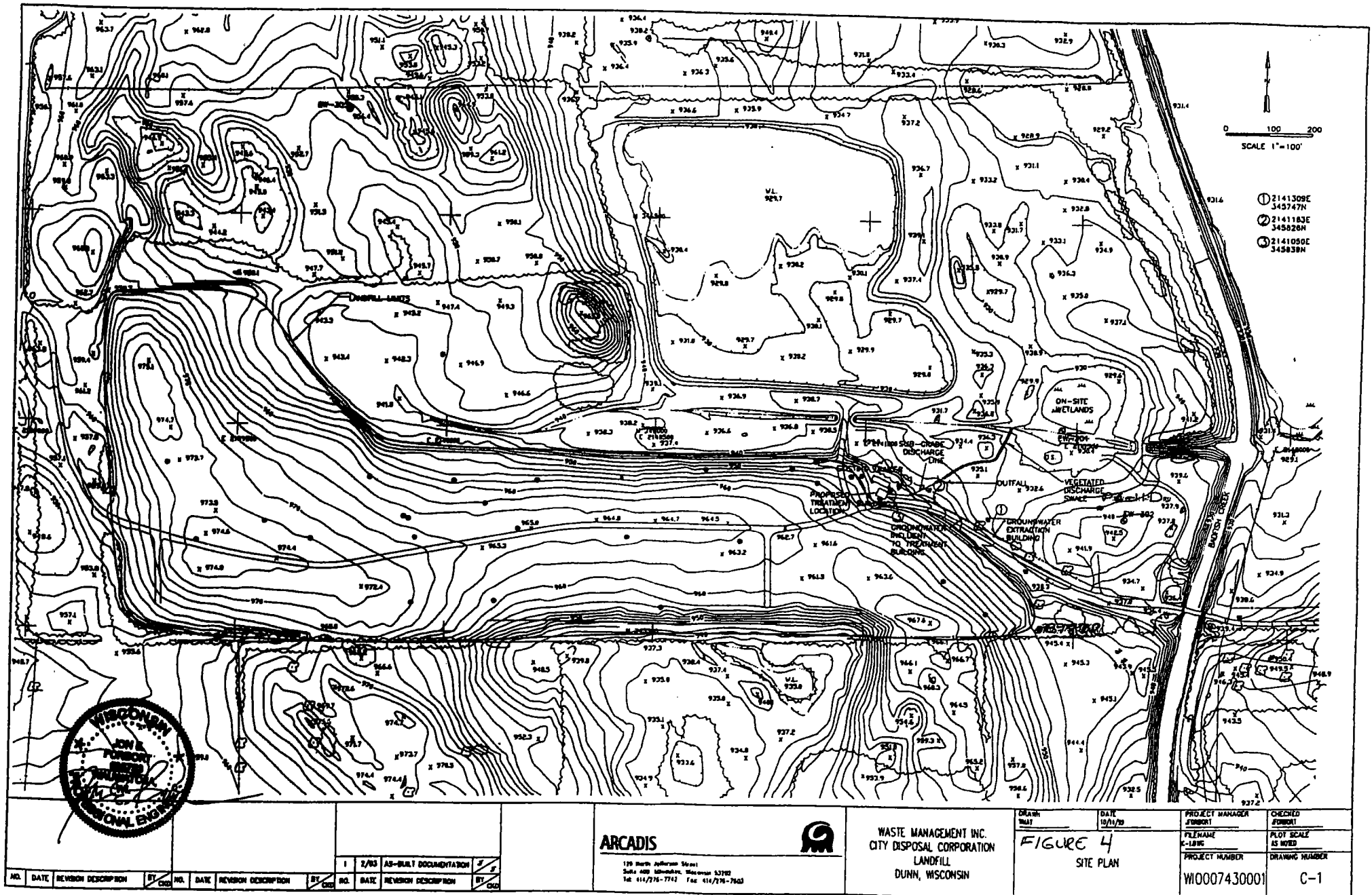


FIGURE 2

FIGURE 3





ARCADIS



WASTE MANAGEMENT INC.
CITY DISPOSAL CORPORATION
LANDFILL
DUNN, WISCONSIN

DRAWN
WAT

DATE
10/15/78

FIGURE 4
SITE PLAN

PROJECT MANAGER
FURBUSH

PROJECT NUMBER
W10007430001

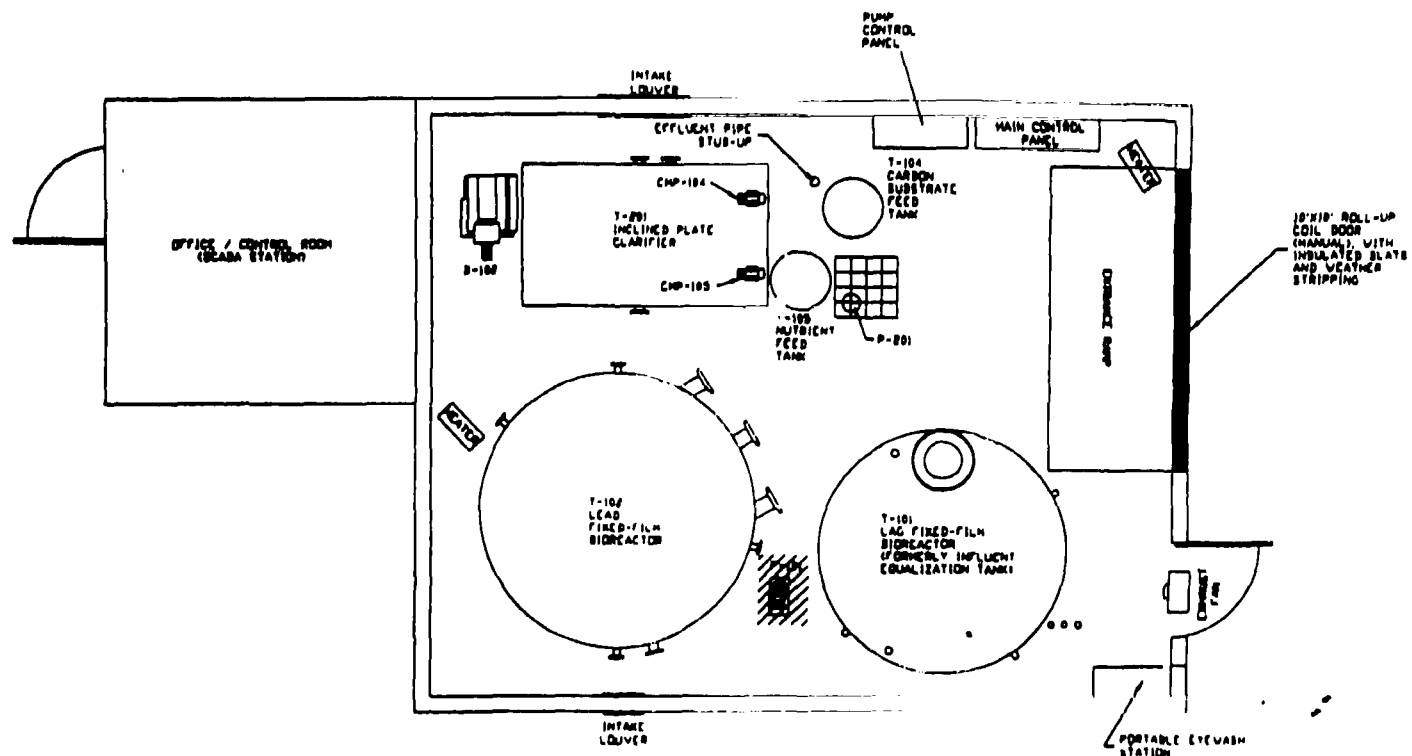
CHECKED
FURBUSH

PLOT SCALE
AS NOTED
DRAWING NUMBER
C-1

NO.	DATE	REVISION DESCRIPTION	BY	NO.	DATE	REVISION DESCRIPTION	BY	NO.	DATE	REVISION DESCRIPTION	BY	NO.	DATE	REVISION DESCRIPTION	BY

1	2/83	AS-BUILT DOCUMENTATION	
---	------	------------------------	--

175 North Jefferson Street
Suite 400 Milwaukee, Wisconsin 53202
Tel 414/776-7742 Fax 414/776-7603



LEGEND
Hatched area denotes equipment and/or function taken out of service during August 2003 retrofit.



<div>ARCADIS</div> <div>120 North Jefferson Street Suite 400, Milwaukee Wisconsin 53202 Tel: 414/761-7740 Fax: 414/761-7640</div>										<div>WASTE MANAGEMENT INC CITY DISPOSAL CORPORATION LAKEVIEW DUNN, WISCONSIN</div>										<div>TREATMENT SYSTEM EQUIPMENT LAYOUT</div>										<div>PROJECT NUMBER W000743.000</div>										<div>FIGURE 5</div>									
<div>NO. DATE REVISION DESCRIPTION</div>										<div>NO. DATE REVISION DESCRIPTION</div>										<div>NO. DATE REVISION DESCRIPTION</div>										<div>NO. DATE REVISION DESCRIPTION</div>										<div>NO. DATE REVISION DESCRIPTION</div>									

WELL_NO|PZ11D

ACETONE

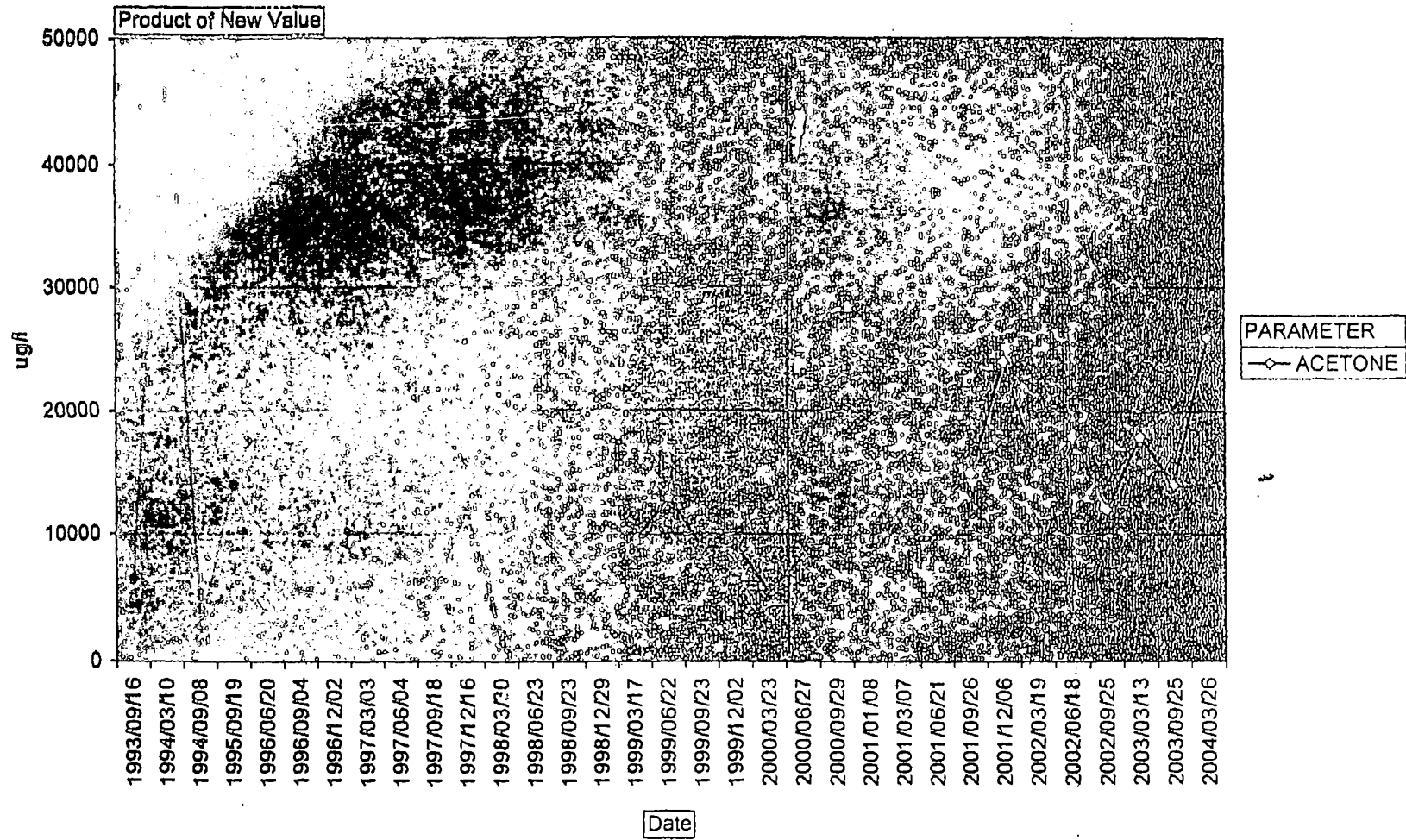


FIGURE 6

WELL_NO/PZ11D

TETRAHYDROFURAN

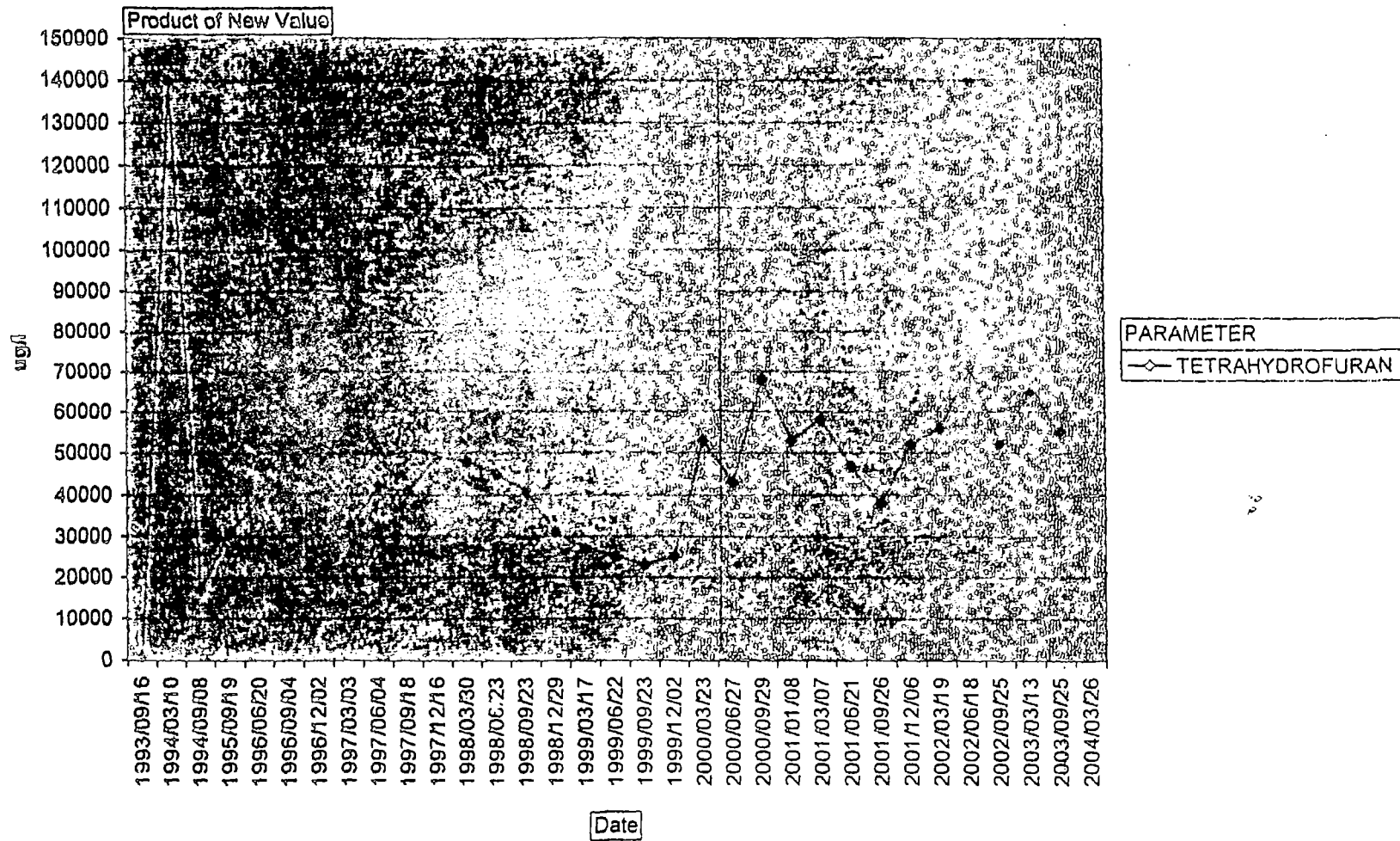


FIGURE 7

WELL NO PZ140

TOLUENE

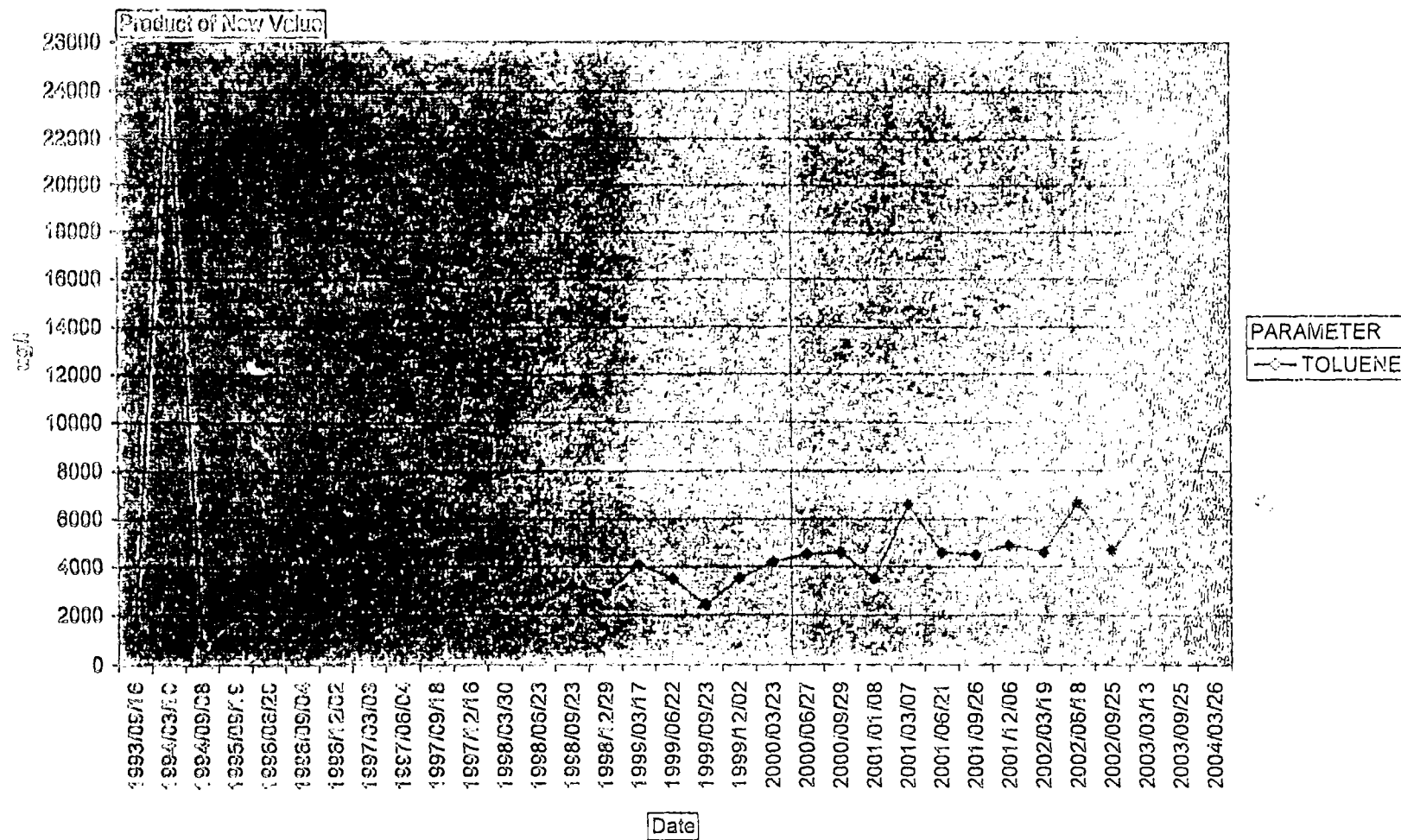


FIGURE 8

WELL NO B10RR

ACETONE

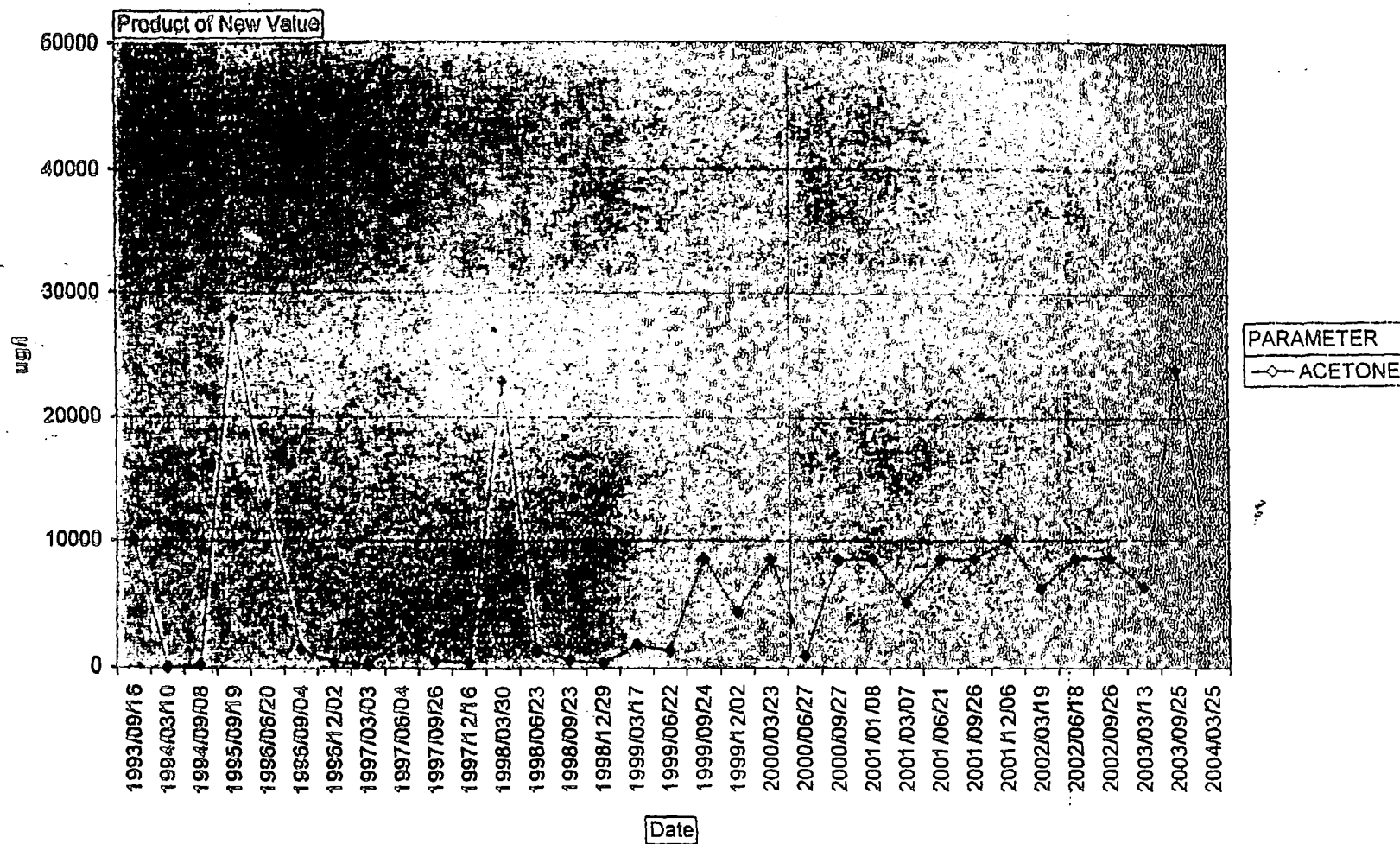


FIGURE 9

WELL_NO 818RR

TOLUENE

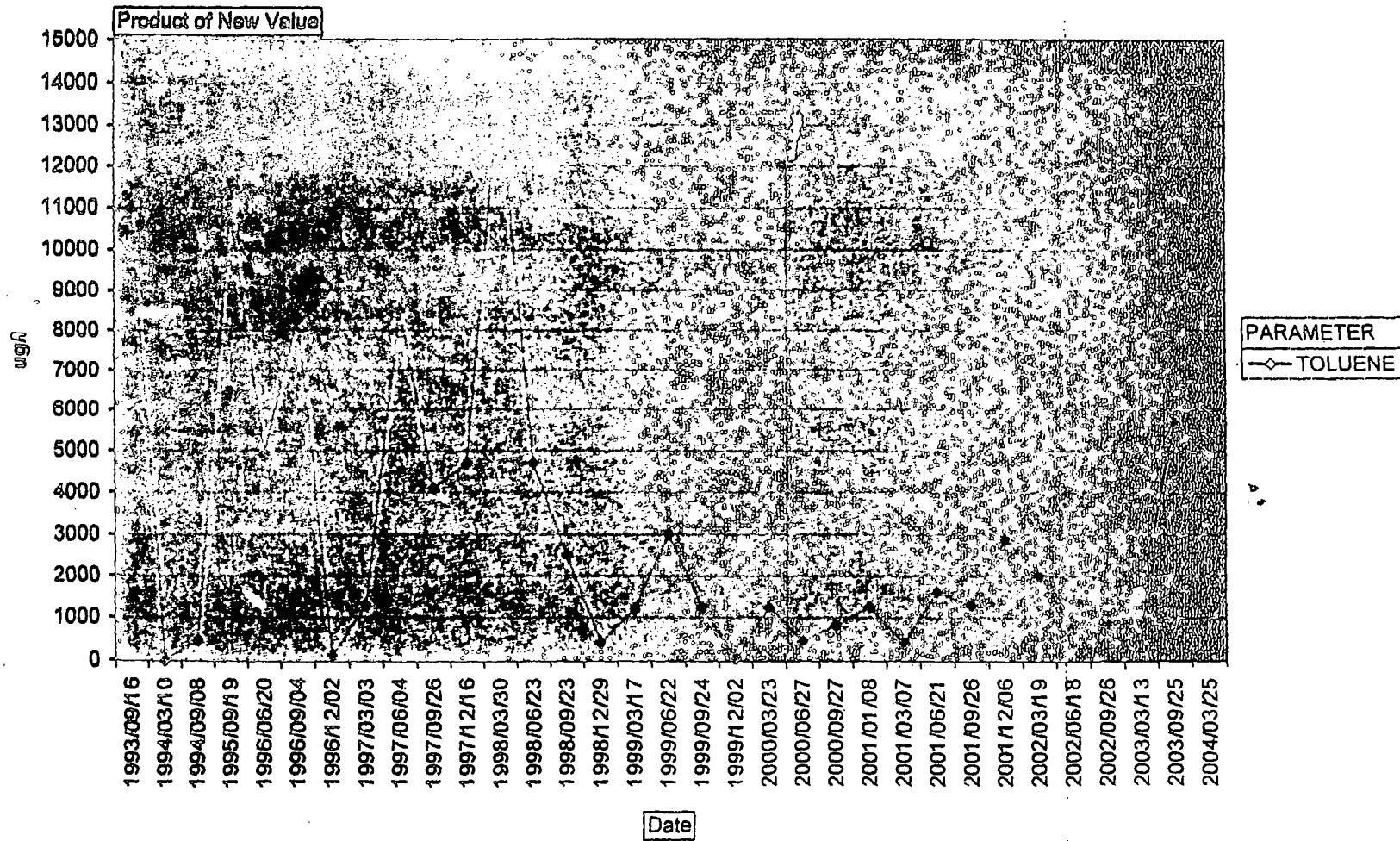


FIGURE 10

WELL NUMBER

TETRAHYDROFURAN

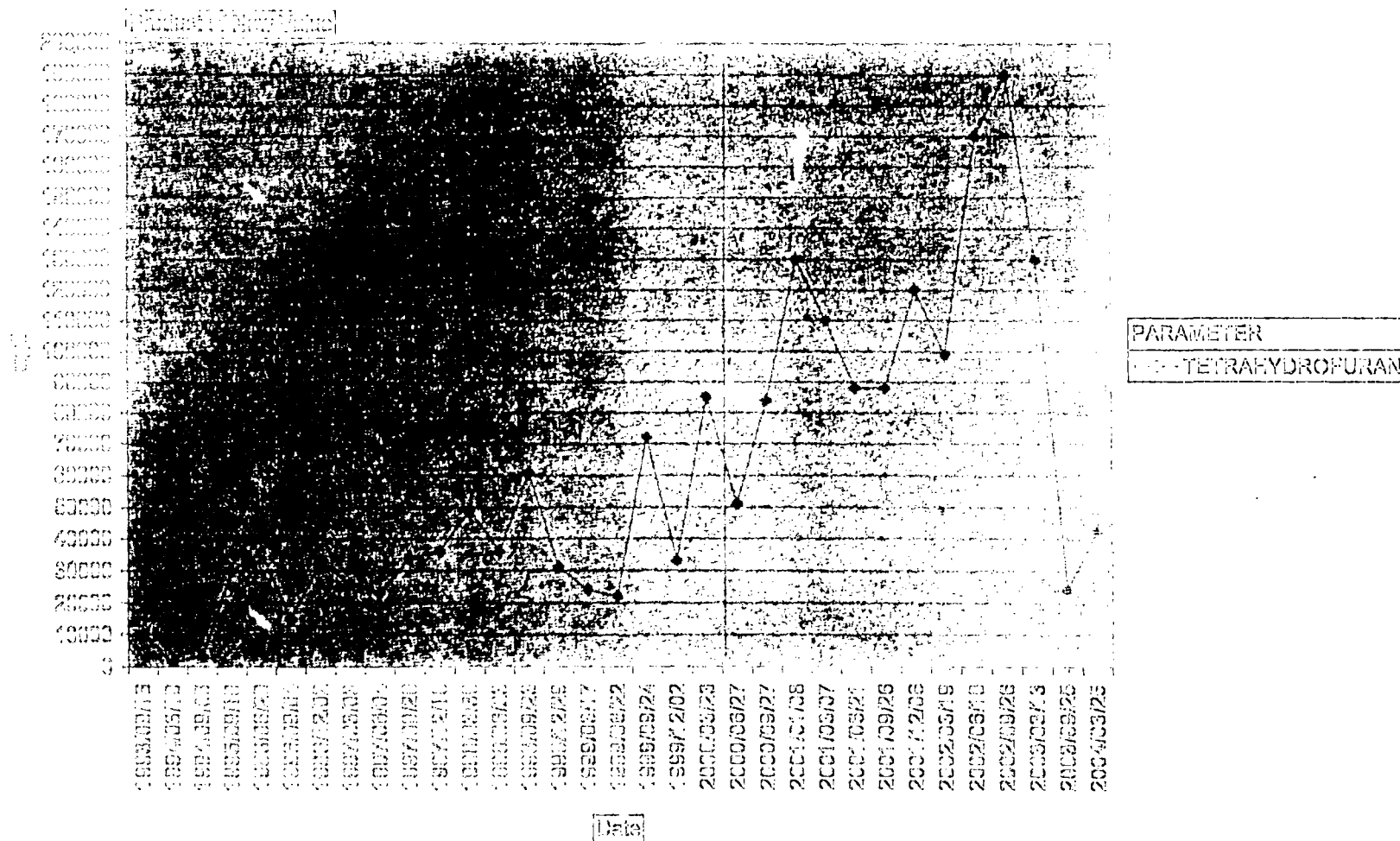


FIGURE 11

Institutional Controls Report Tier 1 Data

Site Name	Cerclis ID	Site ID	Region
City Disposal Corp. Landfill	EPA Site ID	WID980610646	05

IC Basic Questions

Question	Answer
Is there contamination present in Soil at a level that does not allow unrestricted use/unlimited exposure?	yes
Is there contamination present in Ground Water at a level that does not allow unrestricted use/unlimited exposure?	yes
Is there contamination present in Surface Water at a level that does not allow unrestricted use/unlimited exposure?	no
Is there contamination present in Sediments at a level that does not allow unrestricted use/unlimited exposure?	no
Is there contamination present in Air at a level that does not allow unrestricted use/unlimited exposure?	no
Are there ICs required for Soil (those called for in decision documents)?	yes
Are there ICs required for Ground Water (those called for in decision documents)?	yes
Are there ICs required for Surface Water (those called for in decision documents)?	no
Are there ICs required for Sediments (those called for in decision documents)?	no
Are there ICs required for Air (those called for in decision documents)?	no

IC Objectives

Objective Description: ROD-p.28 - "...IC including deed restrictions limiting the land use of the landfill...and ground-water use restrictions..."

Media: Ground Water

Objective: Other (ROD calls for "groundwater use restrictions" actual deed restriction says no operations which "extract, consume, or...use groundwater.... except...carrying out the terms of the Order..."

Addressed in Planned Instrument: no

Addressed in Implemented Instrument: no

Objective Description: Para. C-from Restrictions/Covenants - "...there shall be no agricultural, recreational, residential, commercial, or industrial use of the Real Estate, including but not limited to...excavation, grading or other activity involving movement of soils at the Site..."

Media: Soil

Objective: Other (ROD called for (p.28) "IC" via deed restrictions on landfill and landfill property use

Addressed in Planned Instrument: no

Addressed in Implemented Instrument: no

IC Instruments

Instrument Name: Wisconsin Administrative Code 10.123 A1 Exclusive Agricultural District

Instrument Category: Government

Instrument Type: Zoning Ordinance

Instrument ID:

Planned Implementation Date:

Actual Implementation Date:

Issuing Organization: Town of Dunn

Use Restrictions Specified in Instrument:

Site is located in area zoned as A-1 Exclusive Agriculture. Other uses forbidden unless zoning request change made to Town of Dunn/Dane County

Instrument Name: Declaration of Restrictions and Covenants upon Real Estate -Adm. order #2477365 as issued by the Notary Public

Instrument Category: Proprietary

Instrument Type: Deed Restriction of Unspecified Type (Declaration of Restrictions and Covenants upon Real Estate)

Instrument ID:

Planned Implementation Date:

Actual Implementation Date: 06-08-1993

Issuing Organization: Waste Management of Wisconsin

Use Restrictions Specified in Instrument:

Para. C - from Restriction/Covenants "...there shall be no agricultural, recreational, residential, commercial, or industrial use of the Real Estate, including but not limited to...excavation,grading or other activity involving movement of soils at the Site..."

Instrument Name:

Instrument Category: Enforcement

Instrument Type: Unilateral Administrative Order (UAO)

Instrument ID:

Planned Implementation Date: 03-15-1993

Actual Implementation Date:

Issuing Organization: USEPA

Use Restrictions Specified in Instrument:

UAO Para. 47 (in part)"...EPA has determined that institutional controls are necessary..."...within 15 days after effective date of this Order, Respondent shall record a copy of this Order with the Recorder's Office Dane County..."

Contacts

Role: Site Manager (RPM)

Organization Name: Town of Dunn

First Name: Russell

Last Name: Hart
Telephone Number: (312) 886-4844
Email Address: hart.russell@epa.gov

Role: EPA Attorney
Organization Name: Waste Management of Wisconsin

First Name: Brian
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Data Sources